BRITISH
METEOROLOGICAL
SOCIETY

MINUTES
OF
ORDINARY
MEETINGS

MINUTE BOOK
BRITISH MET. SOC.
1858 - 1873
JAN JUNE

CLARK
13
MOORGATE STREET

18

That the Secretary be instructed to issue to the Fellows halfpenny cards one week previous to next meeting, with the titles of the papers to be read at that meeting printed thereon.

Prof. W. Scott

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British Meteorological Society.

1858. January 20.

The Society met at the Rooms of the Institution of Civil Engineers.

Dr. R. D. Thomson in the Chair.

The minutes of the last Meeting were read and signed.

Sir Chas. Nicholson L.L.D. Provost of the University of Sydney, Australia, and John Arnold Esqr. of the Medical Staff Corps, Aldershott Camp, Hants, were ballotted for and duly elected Members.

A paper was read on the Results of Observations made on the amount of Ozone in the atmosphere at Isle Jesus, Canada, by Dr. Smallwood; and a second paper was read by the same author, on the Meteorological Observations at St. Martin's, Isle Jesus.

British Meteorological Society.

1858, March 24th.

The Society met at the Rooms of the Institution of Civil Engineers.

R. Stephenson Esqr M.P. in the Chair.

R. Mylne Esq. was balloted for and duly elected a Member.

Metoric Iron of Atacama
by W. Bollaert. F.R.G.S. &c

This Iron is of the sort known, as the Pallas Meteorite found in Siberia, resembling coarse sponge, the cavities filled with Olivine.

Mr Bollaert first met with a specimen of it in Peru in 1826, & was informed that about 1820, a loud report was heard in the Air in the north part of the Desert of Atacama, & shortly afterwards, masses of this iron were found. When on his journey from Peru to Chile by the coast, he attempted the search for the Meteorite, but getting for awhile lost among the ~~to~~ sandhills of the Desert, he had to make the best of his way back to the Sea-board.

From certain crude reports it has been supposed that this Iron was the produce of a mine.

In 1852 Mr B. revisited Peru, & found that Dr. Philippi was then exploring the Desert of Atacama, who subsequently ~~gave him the following particulars~~, corroborating the accounts of the period of its fall, about 1820. The spot the Dr. found the fragments was 1. league S.W. from the water-holes of Imilac 23° 49' S. 69° 14' W. 8620 feet above the Sea.

All the large masses have been taken away, & the Dr. only found small fragments, the largest two ounces, the smallest less than a grain, & he conjectures that some 3000 of the smaller fragments fell, exclusive of the larger ones; that the Meteor came from the N.N.E. Its analysis by Professor Domeyko is, Iron 88.54. Nickel 8.24. Cobalt 1.14. Silica &c

The following is ~~the~~ his analysis of the Olivine from ~~the~~ the Volcano of Antuco (Chile) & ~~that~~ of the Atacama Iron =

	V. of Antuco	Atacama Iron
Silica	0. 400	0. 407
Magnesia	0. 476	0. 397
Protoxide of Iron	0. 133	0. 196

—the following paper was read on the meteorological and physical effects of the solar eclipse of March 15, 1858, by Mr. James GLAISHER, F.R.S., Secretary of the British Meteorological Society:—By tables and diagrams it is shown that the depression of temperature during the eclipse was about 2½ deg. at stations north of the line, and nearly 3 deg. at stations on and south of the line of central eclipse; that at places where the usual diurnal increase had taken place in the morning the depression of temperature during the eclipse was greater, and that at places where such increase had not taken place, it was less than the above numbers. Also, that at places where the sky was uniformly cloudy during the day, the decrease in the readings of a blackened bulb thermometer was less than 12 deg., whilst at places where the sky was partially clear the depression was from 17 deg. to 19 deg., and that, what temperature soever the blackened bulb thermometer indicated in the morning it fell, during the eclipse, to that of the temperature of the air at all places. The humidity of the air was such that, at places north of the line, the wet bulb thermometer read 2·6 deg. less; on and near the line the depression was 3·2 deg., and south of it was 3·7 deg. below the adjacent dry bulb thermometer. At some places the humidity of the air increased at the time of greatest eclipse, but to a much less extent than generally supposed, and was far from being very universal. The sky was partially clear at some places on the east and south coasts, in the Channel Islands, and north of Scotland; and it was for the most part overcast elsewhere. Near the southern extremity of the central line the sky was partially clear, and at its northern extremity, near Peterborough, the clouds were broken; at most intermediate places the sky was wholly overcast. The complete ring was seen at Charmouth and neighbourhood, near Lyme Regis, and at Peterborough; but, so far as I can learn, at no other places. My own station was on the calculated line of central eclipse, near Oundle, in Northamptonshire, and here I saw the moon and sun's apparent upper limbs coincident, or very nearly so, and therefore that I was situated on, or very near, the northern limit of annularity, and distant from the central line by three or four miles. Of the numerous and remarkable phenomena attendant upon large solar eclipses, only a few were witnessed at any part of the country, or I might say with greater justice were indicated, for independently of the particular character of the day, the time of year was unfavourable to the witnessing all optical effects, whether of light and shade, or colour. For the same reason it was difficult to estimate the true intensity of the darkness, which throughout the eclipse was much less appreciable than it would have been had the sky been clear, and we had been able to note the diminution of the direct light from the sun, as the eclipse proceeded; in which case it is likely that the gloom would have been over-estimated, arising from the mere force of contrast: thus we all know that the gloom in summer betokening the approach of rain or storm is always noticeable and very often striking, whilst the much deeper gloom of a winter's day, which occasionally obliges us to suspend some of our employments, steals on almost imperceptibly and scarcely elicits from us a remark; hence one source of the general feeling of disappointment as to the degree of darkness which was experienced at the time of the greatest obscuration, in addition to which the clouds interposed like a screen to diffuse by reflection some portion of the direct rays absorbed by them over the surface of the earth. From my place of observation, at 0.45 the gloom began sensibly to increase, the wind rose, and slight rain fell. At 0.53 a severe storm might have been supposed impending, and between 1.0 and 1.1 had attained its greatest intensity; but even at this time the obscurity was not sufficient to require that any employment should be suspended. Messrs. Adams and Symons, situated five feet from a shed in the adjoining brickfield, spoke of the gloom as very intense for a period of 10 seconds, and sufficient to render it difficult to take the readings of the thermometer. At the time of greatest obscurity a body of rooks rose from the ground and flew homewards, also a body of starlings rose together, and various small birds flew wildly about. A hare was seen to run across a neighbouring field as though it were early morning; straw rustled, and the silence was peculiar and intense. The darkness and lull was that of an approaching thunder-storm. Directly after the moment of greatest intensity the gloom was sensibly and instantaneously diminished, and in a very short time the day was restored to its ordinary appearance. After 0.50 the lark ceased to rise, and did not sing. At 1.10 it rose again, and was heard. The collected information tends to show that birds and animals, but particularly the former, were affected in some degree at most places, and that it is probable the gloom was referred by them to the approach of evening; and this not so much from the simple fact of the gloom as from the manner of its approach without the accompanying signs of atmospheric disturbance which ushers in a storm, and to which all birds and many animals are keenly sensitive. The effect of the unwonted darkness upon birds would seem to have been general: mention is made all over the country of the return of rooks to their rookery; starlings were seen in many places taking flight, whole flocks of them together; near Oxford, Dr. Collingwood remarked that a thrush commenced its evening song; at Grantham, pigeons returned to their cote during the time of the greatest obscuration; at Ventnor, Dr. Martin notes the fact that a fish confined in an aquarium, and ordinarily visible at evening only, was in full activity about the time of the greatest gloom. In Greenwich-park the birds were hushed, and flew low from bush to bush, and at most places during the darkness the song of many birds was stilled. At Campden-hill it was observed that the crocus closed about the same time, and, at Teignmouth, that its colour changed to that of the pink hepatica, "a fact," writes Mr. C. Lake, "which I did not notice myself, probably because I did not look for it, but which I have since heard has been confirmed by others." The darkness was not sufficient at any place to prevent moderate-sized print being read at any convenient distance from the eyes, out of doors, but difficulty was sometimes experienced in reading the instruments. At Grantham the darkness was described to have been about equal to the usual amount of light an hour before sunrise; near Oxford, as about equal to that just after sunset on a cloudy day. The general impression communicated was that of an approaching thunder-storm. The sudden clearing up of the gloom directly after the greatest phase was likened, by more than one observer, to the gradual but somewhat rapid withdrawal of a curtain from the window of a darkened room. The darkness is described to have been generally attended by a sensation of chilliness and moisture in the air. As a photometric test during the eclipse, strips of photographic paper were exposed for equal intervals of time every five minutes. The result was a scale of tints which exhibited clearly the diminishing intensity of light before and up to the time of greatest obscuration, and the subsequent and rapid increase beyond. The range of tints is necessarily low, owing to the cloudy state of the sky, but this disadvantage does not interfere with the proportionate depths of tint. The time of greatest darkness is distinctly shown by the very feeble discolouration of the paper. Early in the morning powder was fired by a three-inch lens in four seconds, but as the weather became more unfavourable and the eclipse proceeded, it ceased to fire at any time within a minute. Once during the morning it fired after an interval of seven minutes. Throughout the eclipse it occurred to me that the illuminating power of the sun was much more than might have been supposed commensurate with the unobscured portion of the disc. When casual breaks permitted it to be visible the illuminated crescent, up to the time of the greatest phase, emitted beams of considerable brilliancy, which marked out a luminous track in the gloom, and were clearly and well defined in extent and figure. As the eclipse proceeded a decided change was to be observed in the colour of the sun itself, which assumed a pure silvery brightness like that of Venus after inferior conjunction with the sun. The absence of all yellow in the light was remarkable; and at the time when the annulus was nearly formed, it appeared like a line of silver wire. In conclusion, I beg sincerely to thank those gentlemen who, by their ready compliance with the request of the council, have supplied me with data for the foregoing investigation, of which we may say, literally as well figuratively, that it exhibits only the faint outline of facts dimly visible through a screen of clouds. I think, however, it reasonable to infer that the great paucity of effects and general phenomena witnessed, even in places where the sun was visible, is due to the conditions of the atmosphere, attributable alike to climate, time of year, and unfavourable weather, and should by no means lessen our confidence in previous accounts of the grandeur and beauty of the attendant phenomena upon solar eclipses. Optical phenomena, we all know, are dependent upon the medium through which we view them for the nature and power of the effects produced.

At a meeting of the British Meteorological Society held on March 18th, a Paper was read by Dr Tripe, Medical Officer of Health for Hackney District entitled

Observations on the Climate & Mortality of London in the year 1857.

Dr Tripe commenced by stating that his observations on the climate of London were deduced from the records of the Medical Officers of Health, from the returns of the Board of Health, of Greenwich, ~~which~~ the majority of which had been published in the "Weekly Record of the Sickness & Meteorology of London" edited by the Association of Medical Officers. He showed that the barometric readings corresponded so accurately, due allowance having been made for elevation, that no comparison of these would be useful, & that the instruments used by the observers, Dr Sanderson, ~~Mr Burge~~, Dr D. Thomson, Mr Burge, Dr Tripe & Mr Hailes at the Board of Health, had all been corrected for error by Mr Glaisher.

Some of the most interesting & original facts mentioned had reference to Ozone. Dr Tripe stated that Dr Moffat's paper & table being used, 188 degrees of ozone were registered at Hackney & 396 at Fulham, that the largest quantities were registered at Hackney when the wind was N.E. & at Fulham when it was S.W., the position of the Stations being such that a N.E. wind blew directly from the country to Hackney & passed over London to Fulham, & vice versa with a S.W. wind. These results being almost of uniform occurrence, could only be explained by the supposition that the atmosphere of London removed the ozone from the air. The figures proved this conclusively, as of the 188 degrees at Hackney 135 were registered on 69 days when the wind was Northerly or N.E., ~~& of the~~ whilst only 79 degrees were registered at Fulham. On the other hand on 118 days when the wind was Southerly or S.W. 53 degrees were registered at Hackney & no less than 317 degrees at Fulham. These results which were first noticed by Dr Tripe nearly 12 months since, have been lately explained by the experiments of Dr Moffat which shew that the products of combustion destroy ozone.

In ~~regard to~~ discussing the thermometer observations he divided the stations into two groups, outlying & central, Fulham, Paddington, Hackney, & Greenwich constituting the former, & the Board of Health & St Thomas's Hospital the latter. He stated ~~that~~ the mean of the extreme weekly ranges at the outlying stations to have been 46.7° & ~~of~~ at the central 40.5 that the highest & lowest temperatures, viz 92.7° & 17.0° were registered at the outlying stations, that the extreme range for the year consequently was 75.7°, & that the mean daily range for the year was 15.8° at the outlying & 11.5° at the central, that the mean adopted temperature for the former was 51.5° & for the latter 51.2°, which ~~after allowing~~ when corrected for elevation showed a variation between the two of .06° only. A comparison of the maximum & minimum observations proved that the small range of temperature at the central stations as compared with that of the outlying, was induced rather ~~more~~ by the night temperature describing a smaller curve than from the want of heat in the day time.

He next examined the observations as to humidity, & pointed out that the air of

than the district around it, which he accounts for by the drying
fires, which is counteracted only by the rain which quickly sinks
into the ground, by watering the streets, the escape of aqueous
... & from boiling water in the kettles & steam engines of London". The
of the outlying stations was 82, & of the central 77; the mean
... was 21·0 inches in the latter, & 22·9 in. in the former, the
... stations having been very small.

... observations for each quarter separately, but as the results only
stated, we need not follow him in this part of his paper.

... paper consists in a comparison between the mean temperature
year, & the mortality from "all causes", from inflammatory
... & from diarrhoea. He divided
groups as regards temperature, each embracing 5·0°, commencing
terminating at 65°–70°; & showed that the greatest mortality
a temperature of 30°–35°, & the smallest with 55°–60°; the
70° being much more fatal than that of 55°–60°. The number of deaths
diseases of the lungs
from all causes in the eight
..., commencing at 30°–35° —
196, 188, 119, 79, & 56.
... mortality of these diseases when a low temperature prevails. The
diarrhoea and 34, 38, out of each
causes at the corresponding temperatures were; 9, 11, 12, 13,
showing the small mortality from diarrhoea at the low tempe-
enormously increased number which were registered when high
... 60°) prevailed, the rate at 55°–60° being 44; 60°–65°, 111;
... than 188.

Robt Stephenson

British Meteorological Society.

June 9th 1858

General Meeting.

The Society met at the Rooms of the Institution of Civil Engineers –

R. Stephenson Esqr. M. P. President, in the chair.

G. A. Rogers Esqr., Professor Kingston, and A. L. Harris Esqr., were balloted for, and duly elected Members.

The Report of the Council for the past year was read.

After which the following Papers were read; — 'On the Hourly Meteorological Observations at Greenwich in 1856' by S. M. Drach Esqr. – 'On the Thunderstorms in 1857' by G. J. Symons Esqr., — 'On the Periodical Phenomena of the years, 1855, 1856, and 1857, as tabulated and arranged from the Monthly Returns of the British Meteorological Society', by James Glaisher Esqr.

Nathl. Beardmore

British Meteorological Society.

1858 November 17th.

— General Meeting —

The Society met at the Rooms of the Institution of Civil Engineers

N. Beardmore Esqr in the Chair.—

J. Rock Esqr, Hastings; D. Smith Esqr Birmingham; Mr Garcia del Rio, Jamaica; were elected

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~~At a Meeting of the British Meteorological Meeting~~ Society held on Nov. 17th Dr Tripe then read a Paper on the Meteorology & Mortality of the present year. The ~~Meteorological~~ first part The Meteorological pages of the "Return of the Health & Meteorology of London", which were edited by Dr Tripe from ~~Table Desportion~~ was compiled from observations made by some of the Medical Officers of Health, viz, by Dr Thomson, Dr Sanderson, Dr Tripe & Mr Burge, by Mr Hailes at ~~the~~ Whitehall, & ~~by Mr Glaisher at~~ from the Greenwich returns. He showed that the climate of central London differed in many respects from that of the surrounding districts; that the temperature did not rise so high by day, nor fall so low by night, & that the range of temperature was consequently less, & that the ~~hum~~ humidity of the air was less in London proper, than at Greenwich, Fulham, Paddington or Hackney. The most interesting meteorological remarks ~~observations~~ were those relating to Ozone, ~~He showed that sin~~ for portions of the same ~~pot~~ test papers being used at Hackney & Fulham, the amount of Ozone was ascertained to varied ~~depended~~ chiefly with the wind. ~~That~~ When the wind was westerly or southerly large quantities were observed at Fulham, & very small amounts, or perhaps none at Hackney; & ~~that~~ when the wind was northerly or easterly large quantities ~~similar results~~ ~~within~~ were noted at Hackney & ~~only~~ much less or none at Fulham. This was explained by supposing that air charged with ozone arriving from the country became deozonised by intermixture with the London atmosphere; Fulham being to the SW of London, & Hackney to the NE. The alternations just described were not of occasional, but almost invariable occurrence.

As regards the effect of temperature on mortality he stated that ~~in 19 weeks~~ by placing the mortality the week after the temperature to be considered, he found that in 19 weeks ~~during~~ which were below 50°F, no less than 24,075 ~~45,069~~ deaths were registered from all causes; whilst in the same number of weeks hotter ~~above~~ 50°, there were only 20,994 deaths. ~~were registered from all causes~~. That the group of weeks in which the temperature was below 35° the mean mortality was 1354, whilst in that which had a temperature above 65° it was only 1075. That of 7,631 deaths from inflammatory diseases of the lungs registered in these 38 weeks, no less than 5,719 deaths happened ~~were registered~~

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As regards the effect of temperature on mortality he stated that ~~in 19 weeks~~ by placing the mortality the week after the temperature to be considered, he found that in 19 weeks ~~during~~ which were below 50°.7, no less than 24,075 ~~45,069~~ deaths were registered from all causes, whilst in the same number of weeks hotter ~~above~~ 50° of these were only 20,994 deaths ~~were registered from all causes~~ *. That the group of weeks in which the temperature was below 35° the mean mortality was 1354, whilst in that which had a temperature above 65° it was only 1075. That of 7,631 deaths from inflammatory diseases of the lungs registered in these 38 weeks, no less than 5,719 deaths happened ~~were registered~~ in the 19 weeks having a temperature below 50° & only 1,912 in those which were above it. That of 5,319 deaths from consumption in the same period, 2,826 occurred contemporaneously with the lower & as many as 2,493 with the higher temperature showing that low temperatures were not more fatal to consumptive persons than to ~~those~~ those suffering from other diseases. Also ~~the population at large. Lastly~~, that of 1,848 deaths from diarrhoea only 228 were registered during the weeks which had a mean temperature of less than 50° & no less than 1620 in those ~~those~~ which were warmer than 50°.

He then considered the relations between these diseases & temperature in eight groups, including all the weeks which were colder than 35° in one group, next those which had a temperature of 35°–40°, & thence up to 65°–70°. The results obtained proved more conclusively the ~~effects~~ prejudicial effect of low temperatures on mortality

A Paper was then read. _ "On the Determination of the Mean Pressure of the Atmosphere, on every day in the year; as deduced from all the Barometrical observations taken at the Royal Observatory, Greenwich, during the years 1841 to 1858." By, James Glaisher Esqr. F.R.S., Secretary to the British Meteorological Society.

The author commenced by stating that, up to the present time there had been no determinations of the mean daily pressure of the atmosphere, deduced from a series of observations extending over a period of several years. That all the observations upon which the following results are based, have been published in Greenwich observations. He then exhibited Tables, showing the mean daily reading of the Barometer, for every day in the years 1841 to 1858; from which the mean values for every day in the year had been determined. From these results a curve had been laid down, showing the most probable mean pressure of the atmosphere for every day in the year. The following is a description of its progress.

Starting from the point 29.722 inches, on January 12th the lowest point which is found in the curve during this month; the reading increases very evenly, averaging about 0.002 inch daily, to the point 29.768 inches, on February 1st, and remains at this reading with but slight variation till February 8th. From this time the reading again begins to rise, and on the 14th attains the point 29.815 inches, at which value it remains nearly stationary until the end of the month. March begins with a very rapid increase in the atmospheric pressure, in fact, the most rapid rise during the year, occurs at this point in the curve, until the reading reaches

29.938 inches on the 8th, which is the culminating point in the years curve and makes an increase of 0.113 inch since the commencement of the month. From March 8th, a rapid and nearly uniform fall, commences, amounting to nearly 0.01 inch daily, until March 23rd at which time the reading shown is 29.783 inches, the fall still continues, though less rapidly (the rate of decrease being about 0.003 inch daily) until on April 9th the reading 29.737 inches is reached. Here, again, the curve assumes a flattened appearance, until the middle of the month, from which time a slow rise takes place, to the point 29.773 inches on April 28th. The reading now gradually falls to 29.735 inches on May 14th and following the curve it will be seen that a pretty even increase occurs till June 2nd, the reading then being 29.801 inches; after which it remains nearly stationary until June 8th and then decreases to 29.786 inches by the 14th. From June 14th to June 28th the reading increases to 29.819 inches, and remains almost without change for the following four days; it then decreases to 0.012 inch by July 6th; and from this value rises to 29.820 inches by the 11th.

Following the course of the curve, a very regular descent will be seen, to a reading, on August 6th, of 29.748 inches. Little or no change occurs till August 8th, when a rise commences, as regular as was the fall at the latter part of the last, and beginning of this month (August), and continues till September the 9th, the reading then being 29.910 inches. This is the second instance in the year, of a wave in the curve, whose highest point exceeded

the value 29.9 inches. From September the 7th the reading gradually falls to 29.890 inches on September 12th and still continues its downward course, but much more quickly (the average fall being 0.01 inch daily,) till it reaches 29.687 inches on October 6th which is the lowest point yet attained in the year's curve. From October 6th to the 9th the value continues nearly unchanged, and then steadily increases to 29.733 inches, on October 29th; from this reading with more rapid strides, it rises to 29.801 inches, on November 9th, and then falls very rapidly till the 23rd, the reading then being 29.684 inches, which is the minimum in the year's curve, and 0.003 inch lower ~~than~~ the reading on October 6th. A rapid and tolerably uniform rise now takes place until December 29th the reading on this day being 29.900 inches, being the third instance of a point in the curve, attaining the value 29.9 inches. During the two days December 30th & 31st scarcely any change occurs, but from this time to January 3rd, a most rapid fall, averaging 0.04 inch daily, takes place; from the 3rd it still continues to ~~rise~~ fall until the 12th, when the point 29.722 inches; the starting point is arrived at.

R D Thomson

British Meteorological Society.

January 19th 1859.

General Meeting.

The Society met at the Rooms of the Institution of Civil Engineers.

R. D. Thomson Esq. M.D., F.R.S. in the Chair

The minutes of the last meeting were read and confirmed.

J. Parkinson Harrison Esq. & Rev. J. Woolley [illegible] Inspector of Naval Schools, ^ Education Departmt. Downing Street were balloted for and duly elected Members of the Society.

"On "Medical Meteorology, and Atmospheric Ozone" by Dr. Moffat. As based upon observations taken at Hawarden during a period of six years. Dr. Moffat stated that a slip of paper prepared with Iodide of ~~[illegible]~~ Potassium and Starch becomes brown when exposed to the action of the air, that if the brown slip be allowed to remain exposed it will lose its color — that a similar slip suspended over a cess-pool does not become brown, and that a brown slip suspended over the same cesspool loses its color. Slips of test-paper were exhibited shewing these changes. In these results, the Author observes there are proofs of three distinct agents. — One Ozone, which decomposes the Iodide of Potassium, the Iodine being set at liberty produces the brown color — The second sulphuretted hydrogen, the hydrogen of which removes the brown color, by combining with the Iodine and forming Hydriodic Acid. The third, incompletely oxidised substances, the products of the decomposition of animal and vegetable matter, which are more easily oxidable than the Iodide of Potassium. The test-papers, however, Dr. Moffat, observes do not always remain colorless over cesspools, nor is the brown color invariably removed by their products, for he has often seen them become

[illegible]

On "Medical Meteorology, and Atmospheric Ozone" by Dr Moffat. As based upon observations taken at Hawarden during a period of six years. Dr Moffat stated that a slip of paper prepared with Iodide of ~~Lead~~ Potassium and Starch becomes brown when exposed to the action of the air, that if the brown slip be allowed to remain exposed it will lose its color – that a similar slip suspended over a cess-pool does not become brown, and that a brown slip suspended over the same cesspool loses its color. Slips of test-paper were exhibited shewing these changes. In these results, the Author observes there are proofs of three distinct agents. – One Ozone, which decomposes the Iodide of Potassium, the Iodine being set at liberty produces the brown color – The second sulphuretted hydrogen, the hydrogen of which removes the brown color, by combining with the Iodine and forming Hydriodic Acid. The third, incompletely oxidised substances, the products of the decomposition of animal and vegetable matter, which are more easily oxidable than the Iodide of Potassium. The test-papers, however, Dr Moffat, observes do not always remain colorless over cess-pools. nor is the brown color invariably removed by their products, for he has often seen them become brown, and also retain their color, while so exposed. He thinks these alternations in color depend entirely upon the relative quantities of Ozone, and the products of decomposition, the quantities varying with the degree of temperature of the air, the season of the year, and the state of the weather generally. As the products of putrefaction and combustion are formed at the earth's surface, Dr Moffat concludes that the quantity of oxidable matter must be greatest in the lowest strata of the air, and that consequently the quantity of Ozone ought to increase with the degree of elevation. This, he shows to be the case by Tables formed from results deduced from Ozone observations taken at fifteen different stations extending thirty miles along a ~~broad~~ tidal river at a mean distance of eight miles inland. It also

appears from these observations, ~~that~~ the mean daily quantity of Ozone, diminishes at the inland stations, and ~~that~~ it is greater in open country than in towns and villages. He remarks that similar results were obtained by Mr. Glaisher in his investigations of the Meteorology of London during the Cholera Epidemic of 1854. Dr. Moffatt next observes that a current of air passing over a locality charged with the products of decomposition will be that of the minimum of Ozone, and another proceeding from a locality in which these products are not in sufficient quantity to take up the ozonised air, will be that of the maximum of Ozone. That in places where the air is stagnant and during calms Ozone will also be at its minimum. He proceeded to show, that as the N. Current according to the rotation theory of the wind, is the lower stratum of the air in motion, and blows over the earth's surface, it ought to be that of the minimum of Ozone; and as the S. is the higher air in motion, it ought to be the maximum of Ozone current. From tabulated results he showed that such was the case; and continued to observe as the N. wind was that of high, and the S. that of low Barometer readings, Ozone periods invariably terminate by increasing readings of the Barometer, and as frequently commenced by decreasing readings of that Instrument. The quantity of Ozone is small during calms, but during falls of snow and at the commencement of them, it is often in great quantity when the air is quite still. This, Dr. Moffatt, believes is owing to the snow-flakes bringing down, the ozonised air and the setting in of the warm south or Ozoniferous current, which as it advances, gradually absorbs the cold lower stratum of air. Dr. Moffatt next proceeds to state that these two chief currents in these latitudes are a

different in a medical as in a meteorological sense and by Tables shows that the maximum of deaths takes place with the minimum of ozone, i.e. in the lowest stratum of the air and with N. current; and that the numbers decrease with increase of height and ozone, and with the S. wind which is the maximum of ozone currents; and that while the N. wind is that of maximum of deaths, the S. wind is that of the maximum of diseases. The author is induced to believe that the N. current produces its effects by being the vehicle of the poisonous substances formed at the Earth's surface, while the S. current is the cause of those diseases commonly attributed to the vicissitudes of the weather. In proof of the influence of the S. current upon health, he adduces the fact, that 10,744 of the 15,840 grains exhaled by the skin in 24 hours, are organic matter and that when the skin is unable to perform its functions, these are removed by the kidneys; and by a long series of experiments he has shown, that these organs remove 44 grains more daily when the wind is in S. than when it is in N. points; and 263 grains more daily when the wind is in those points in which the currents change from N. to S. most frequently, viz. the S.E. and N.W. — Dr Moffat then proceeds to describe the chief meteorological features of the calm, such as high readings of the Barometer, the prevalence of haze, and the absence of ozone; and attributes its deadly influence to the concentration of a poison, that is formed during the decomposition of animal and vegetable substances, by an incomplete oxidation of their hydrogen and carbon, and believes that ozone by affording oxygen to these, converts them into innocuous compounds. This oxidation, he thinks, is the

cause of the dissipation of Ozone. The rapid bleaching of the brown papers during the calm, he thinks is owing to the accumulation of sulphuretted hydrogen. From careful observations of the effects of the calm at every opportunity, he believes that it is favourable to the development of fever in all its forms, and he is of opinion that whether fever or cholera will prevail depend on the degree of concentration of the poison; and in the support of this opinion states that he has seen an Epidemic commence with Scarlatina, run into Typhus and terminate in a disease of choleraic type rapidly decline after Cleansing and Draining). We have no power over the winds, continues Dr. Moffat, but he believes that if a S. or Ozoniferous current could be directed into "fever nests" or into Cholera localities, these diseases would vanish and in proof of the correctness of this opin mentions that Cholera declined at Newcastle in 1853, and in London in 1854, after the setting in of the ozoniferous current, and the he had previously, from such belief, requested Meteorologists to watch the effects of that current upon the Epidemic at these places.

The following Paper was then read "On some of the Atmospheric Conditions favourable to the development of Ozone, as deduced from Observations taken at Little Bredy-Dorset," by H. S. Eaton Esq.

The author stated that in the following paper he had simply endeavoured to show the close and direct relation which the amount of Ozone bears to that of Rain and Cloud. The test-papers ~~were~~ used for the experiments, ~~and~~ were prepared after Dr. Moffatt's formula. Papers were suspended

at 9 a.m; and replaced at 9 p.m; but it was frequently found that the maximum amount of discolouration occurred in 7 or 8 hours after exposure; in all such cases the amount of Ozone was registered as 10. The position selected for the exposure of the papers was entirely removed from any objects which might injuriously affect them; they were suspended at a distance of $5\frac{1}{2}$ feet from the ground, and 351 feet above the sea. The locality is near the head of a valley extending E. S. E and W. N. W, and on its Southern slope; the surrounding chalk hills rise to a height of 750 and 800 feet both in the North, East, and South; while the middle and lower Oolites, successively rise in the West. Mr Eaton then showed, by means of Tables, the relative distribution of Ozone, Cloud, & Rain for each point in the Compass. By these, it was clearly seen that ~~the greater~~ Ozone was prevalent to the largest extent, when the direction of the wind was between the South & West points of the compass, & when the amounts of Rain, & Cloud were greatest; and that the least amount of Ozone was coincident with Winds having a Northerly & Easterly direction & with the least amounts of Cloud and Rain —

Robt FitzRoy

March 23, Admiral Fitzroy in the Chair the following papers were read (2
On a remarkable cold period which occurred in Canada in January 1859 by Dr Smallwood. The author stated that the weather at the beginning of the month (January 1859) was rather mild, the mean temperature of the first day being 30°·9. The thermometer fell on the 3rd to -40° which however did not continue, & a slight fall of snow occurred on the 4th. After entering into some details as to the somewhat extraordinary & varying state of the weather during the intermediate days, he (Dr Smallwood) said that at 10 p. m. on the 7th the wind suddenly veered from the N to the W by S & the mean velocity attained during the night was 36·22 miles, slight snow showers occurred during the night until day break & on Saturday the 8th at 3 a. m. the thermometer indicated zero; at 6h a. m it was -4°, at noon -2°·9, and at midnight -16°·4, on January the 9th at 6h a. m. it was -29°·9, at 2h p. m -21°·5, & at midnight it was at -36°·0, on the 10th at 6 a. m. it was -43°·6, at 9h a. m -41°·6, at 2h p. m was -14°·3, & at midnight 31°·6; on the 11th at 6h a. m. it was -37°·1, at 2 p. m 19°·9 & at midnight -18°·1; on the 12th at 6 a. m. it was -19°·4, at 2h p. m -10°·4, and at 10h p. m. -5.0 On the 13 at 6h a. m -3°·1 & at 7h 30m a. m. it was again at Zero indicating that for a period of 124 hours 30 minutes the temperature was below zero. Mercury he goes on to remark froze in open vessels & mercury in the tube of the thermometer marked -43°·6 showing that mercury contracts by temperature below its freezing point which fact was mentioned by Dr Kane in his Arctic Voyages. The Aurora Borealis was visible

on the nights of the 9th 10th & 11th but not attended with any great display. Dr Smallwood then went on to state that this cold term was felt generally throughout Canada & the Eastern States & would seem to have travelled from the west eastward.

At Rochester which is 4°.5 west of, & 398 feet higher above the level of the sea, than St Martin Isle where Dr Smallwood was the extreme cold was felt some hours earlier, the minimum temperature at the former place being −10°. At Brooklyn near New York it was −9° which is the lowest recorded there for the last 70 years; at Boston it reached −14°, at Toronto −38° at Quebec −40°, and at Huntingdon about 60 miles south of his position the Mercurial thermometer indicated −44° & mercury was frozen quite hard in fifteen minutes exposed. The Ozonometer during the days of excessive cold indicated but a moderate degree varying from 3 to 5 of Schonbein scale. The electrical state of the atmosphere indicated positive signs & its mean intensity during the cold term was about 5 degrees in terms of Volta's Electrometer No 1.

Mr Glaisher stated that in a letter addressed to him from G. T. Knighton Esq. the director of the observatory at Toronto dated January 17th 1859 it was stated that the lowest temperature ever know at that observatory had just taken place, being ~~minus~~ 26°.5, & that three days afterwards it was ~~plus~~ 36° showing a range of temperature of 62½ within 3 days.

Mr Glaisher stated that the temperature in England at the time of these extreme low temperatures in Canada and

North America, was slightly in defect on the 8th & 9th; somewhat in excess on the 10th, & was greatly above the average on the 11th 12th & 13th. The average excess of mean temperature from Jan. 8th to 13th was 3°¼ contrasting very forcibly with the cold period in Canada &c

Mr Glaisher described a new arrangement of the thermometer for solar radiation, in which the whole tube & bulb of the instrument are inclosed in an outer tube & ball from which all air is excluded, the bulb, being in the centre of the ball which is three inches in diameter – he exhibited a series of simultaneous observations with the new arrangements & one of the former construction, from which it appeared that the results are far more uniform & ~~truthful~~ truthfull by the new form, which holds out the hope that by its adoption, results at different stations may be ~~compared~~ rendered comparable. The instrument is made by Messrs Negretti & Zambra

(Meteorological results based on observations taken by the Re[v.] A. Weld at Stonyhurst Observatory during the ten years from Jan [1848] to Dec 1857. The Rev. A. Weld after describing ~~[illegible]~~ geographically & the position of the observatory & the instruments with which it was furnished went on to state that ~~the~~ Meteorological Observations w[ere] first taken there in the year 1846. In October 1847 he, the writer, had through the kindness of Admiral Beauford an introduction to the Royal Observatory at Greenwich, & it

in consequence of his visit there that a more complete & methodical system of Observations was adopted. with the kind assistance of Mr Glaisher, the organization of which system was shortly after completed by the Stonyhurst Observatory being invited to take part in the then new collection of Meteorological results by the Registrar General, & by the formation of the British Meteorological Society of which Mr Weld was one of the first members. The author then proceeded to say that the principal points of observation had been, the Barometer, the dry & wet bulb thermometers, the highest & lowest temperatures in the shade, the highest in the rays of the sun, & the lowest in Grass. To which might be added the direction & force of wind, amount of cloud, rain & snow fall, & the principal ~~phenomena~~ circumstances attendant on the exhibitions of Aurora Borealis, Thunder-storms &c; the hours of observation being 9 a.m. 1 p.m. 3 p.m. & 9 p.m. local time. Mr Weld after speaking further on the plan on which his work had been drawn up & the method used in the reduction of his results showed tables on the mean & extreme readings of the Barometer

during the period over which his observations extended with diagrams exhibiting the same, also tables & the days on which variations in the readings had taken place with a diagram of the same, from all of which he drew very able conclusions. He then went on to remark on the principal phenomena of fair or foul weather considered in connection with the variations of the reading of the Barometer chiefly on rain which as Mr Weld says perhaps there is no meteorological element so easily affected by narrow local circumstances. He then showed tables of the fall of rain & the number of days on which it fell with diagrams of the same, & other diagrams showing the direction of wind & phases of moon in connection with the variations of the

reading of the barometer & rain fall. Mr Mald in conclusion observed that he trusted the ~~foregoing~~ diagrams would afford to his hearers the opportunity of studying several interesting questions relative to the readings of the barometer, direction of wind, & amount of rain & cloud, that it had been more his ~~aim~~ endeavour so to arrange the materials, as to give facility to anyone making such deductions for himself, having previously had some of the most remarkable pointed out to him, than to follow the results minutely.

Jam. Chr. Whitmead
Chairman

British Meteorological Society

June 8th 1859.

The Society met at the Rooms of the Institution of Civil Engineers

S. C. Whitbread Esqr. in the chair

The Secretary read over the Minutes of the last Meeting, which were confirmed.

The Meeting then proceeded to ballot for the admission of New Members, when the Chairman announced that "Charles Frodsham Esqr. was unanimously elected a Member of the Society"

In the absence of the several Authors the Secretary read Papers and Notes on Ozone "communicated by Mr. Rock: also from Dr. Moffat with some specimens and observations; and likewise some observations taken on board "H. M. S La Plata"; also one by Mr. Eaton, for which a vote of thanks to the Author was proposed and carried.

A paper on the Chemistry of Ozone was then read by D. R. Thomson Esqr. M. D.

In the observations which were made on the nature of Ozone for the benefit of Meteorologists, the sources of this condition of Matter were illustrated by experiment. A quantity of hydrogen and oxygen was prepared, by decomposing water by means of a galvanic battery; the gases were strongly impreg-

-nated with the ozone smell. It was the odour of the oxygen obtained by the decomposition of water that first attracted the attention of Schönbein to the subject. To this smell he first gave the name of Ozone, from ozu oleo, in a paper dated the 8^d of April 1840. In 1843 the same chemist showed that the odour possessed a gaseous form, and did not proceed from a Metallic oxide. In 1845 he inferred the existence of ozone in the atmosphere, from the circumstance of paper dipped in a mixture of starch and iodide of potassium becoming blue in certain conditions. About the same period he discovered that ozone may be pro-cured by acting on moist air with sticks of phosphorus, and observed that when ozonised air is shaken with a salt of manganese the sesquioxide of mangan-ese is precipitated; hence he recommen-ded slips of paper dipped in solutions of these salts as test papers for ozone. The author showed that by rubbing a porcelain tube of considerable diameter rapidly by the means of silk and mercurial amal-gam. the odour of ozone was powerfully developed. He stated that a small room had been filled with the smell of ozone by working a powerful electro-magnetic

machine for a few minutes. The principal characters of ozone were its smell, its action on iodide of potassium, and starch, and its rapid effects in oxidising metallic silver. Ozone it had been inferred, existed in the atmosphere, because the air at certain times decomposed the iodide of potassium, although its presence had not been identified by any other tests whatever. The probability, no doubt, was that the effect on the iodide of potassium and starch was due to ozone although this result could not be considered as a demon-stration. The decomposing action of the air under certain circumstances was remarkable to whatever causes due, and ought to be registered by observers. He stated that mere traces of ozone had been detected by him at St. Thomas's Hospital during the prevalence of Cholera in 1854 while all round London it was abundantly present. No con-nexion, however, had been observed between ozone and the prevalence or non-existence of disease. Ozone can only be considered as an active condition of oxygen; it is readily formed by passing continuous elec-tric sparks through pure oxygen, which contracts to one-fourth of its volume, and again returns to its original condition

or negative state by a temperature of 540° to 720° Fahr. Various experiments were shown illustrative of the existence of oxygen in combination in two conditions, in ozonides and antozonides, and of the formation of common oxygen by the union of these different states of ozone.

It was proposed by the Rev H. Beattie and seconded by Mr. Walker, and carried, "that the best thanks of the Meeting be given to Dr. Thomson for his very instructive Lecture."

Dr. Tripe observed that it is of extreme importance to have it stated in all returns of Ozone Papers whether they have been taken when fully exposed to the Air or in a Box. He exhibited Test Papers he had taken at Hackney of which those in the Box differed essentially from those fully exposed.

Mr. Burge read a Paper and exhibited Test papers of Ozone. He showed that the direction and the variety of wind exerted very great influence. At Hammersmith, when the wind comes over the City he has no ozone. Calm winds also produce none.

Mr. Brayley suggested the unreality of the effect said to be produced by the Air on the paper. He appealed to Dr. Thomson to say whether he did not think that a great many inferences were made

without first establishing the proof of the effect alleged

In reply to an enquiry Dr. Camp expressed his belief that while we cannot say that ozone is appreciately detrimental to health it yet has undoubtedly a disabling effect upon the nerves

Mr. Park Harrison communicated some notes on the unusual amount of lunar influence exerted over the temperature of the present year. He exhibited curves of mean temperature for every day in the month of April for forty three years, which showed that whilst, according to the calculated average, the mean temperature at the end of March and beginning of April ought, in each case, to rise above and fall below the mean of the month in 1859 this was exactly reversed. A very cold period occurred at the end of March, the mean temperature (on the 31st) being 9°.4 below the average of that day of the month for forty three years, as determined by Mr. Glaisher. But the 31st of March was also the third day before new moon, and the mean temperature of that day of the lunation in March for the same number of years falls below the mean temperature of the lunar curve. So, also, in April, the mean

temperature of the 7th day was 17°.5 in excess of the mean temperature of that day for forty three years at Greenwich, and the mean temperature of the 15th day was 8°.3 below the average. Here again the 7th day of April fell on the day of maximum temperature for the lunation in April, and the 15th day of April was the 2nd day before new moon, which is within the cold period which precedes that phase of the moon.

The minimum temperature at the Toronto Observatory in January last which was 26°.5 on the 10th day rose on the 13th to 36°.0. At Greenwich a similar rise took place from the 9th (or 3rd day before last quarter) to the 12th (or day of first quarter). On the former day the minimum temperature was 28°.5 on the latter 41°.2 and high mean temperature at the other three phases in January, and on the days of new moon and first and last quarter in March, — in this too following the curve of mean temperature for 520 lunations.

The author, in conclusion, observed that there appeared to be a considerable development of electricity at all the periods of mean temperature.

The following gentlemen were elected officers for the ensuing year.

President, T. Sopwith Esq., — ~~Vice Presidents~~

Vice Presidents.

N. Beardmore

A. Brady.

R. Stephenson.

S. C. Whitbread.

Treasurer.

H. Perigal.

Secretaries

J. Glaisher.

C. V. Walker.

Librarian

W. P. Dymond.

Council

T. H. Barker

Rev H. Beattie

C. Brooke

F. J. Burge.

Rev J. Clark.

F. W. Doggett

Admiral Fitzroy

L. Howard.

J. Lee L L D

Dr. Thomson

Dr. Tripe

Rev A. Weld.

Thos. Sopwith

British Meteorological Society

1859 November 16

General Meeting

The Society met at the Rooms of the Institution of Civil Engineers The President Thomas Sopwith Esq. M. A. FRS in the Chair

The following Gentlemen were balloted for and duly elected Members

The Rev. Sir Hugh Henry Molesworth Bart
Charles Redwood Vachell M. D
Edward Potter Esq Mayor of Tynemouth
Charles Brunsell Esq C. E.
Edward Balme Wheatley Balme Esq

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The following paper was read by the President

ON THE

PRACTICAL IMPORTANCE

OF

METEOROLOGY.

by Thomas Sopwith Esq. F.R.S.

My object in attempting to draw some attention to a subject which must be admitted to be the very basis of this Society's existence (for without practical utility all theoretical studies and observations would have comparatively little claim on our attention)—my object is not to occupy your time by any detailed statement of views which are already well understood, but to direct attention to the present state of meteorological science, *with reference to some means of promoting an increased attention to phenomena which, if accurately observed and applied*, may *in a great degree* afford *certainty* in the place of *conjecture, and reasonable ground of conjecture* and *anticipation* in cases *where no means are at present recognized for forming even probable conjectures.*

It may indeed be said of every science, that its use, and consequently its importance, are increased exactly in the degree in which correct observation is made the basis of practical application. In adverting to the advanced state which corresponding sciences have attained, and to their consequent importance, it is my wish to urge the probability that, by equal earnestness and care in correct and well-arranged observations, Meteorology would become of great practical importance, as well as of popular interest.

And here I may mention the admitted range and importance of

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some other sciences *as compared with the place which Meteorology occupies in public attention*, in order to illustrate the nature and degree of the kind of progress which is required before it can be of extensive public and national usefulness.

Astronomy holds the highest rank in the whole range of the sciences; its lessons are rendered of general importance in all civilized countries by their bearing on Time, on Navigation, and as explaining the most sublime and glorious works of the Divine Architect. Geology in the last half century has rapidly advanced in popular estimation; and few scientific works are read with more avidity than those which relate to the structure of the earth. Popular as are these and other sciences, the department of experimental philosophy now under consideration is in one sense more popular than any other. Not a day, nay, scarcely an hour passes, without some verbal remark on or silent contemplation of the state of the weather. It is the usual salutation of friends on meeting. Whether in or out of doors, each change of aspect in the clouds, the commencement or cessation of rain or snow, and, above all, the varying temperature of northern climates never fail to attract attention. In this sense we may say that Meteorology is the most universally observed of all sciences; that the whole family of mankind form a Meteorological Society, constantly engaged in observing results which, though vague and inaccurate, are more frequently communicated in words and in writing than any other general topic, unless it be health, which is, as we all know, closely connected with, and dependent on, meteorological conditions—so much so that an enlarged and practical view constantly recognizes their mutual connexion.

From this universal recognition of Meteorology at all times and in all places, we might naturally infer that a study so truly popular and of such admitted interest would long ere this have become the subject of extensive as well as careful observation and of exact scientific record. That it has not as a science attained its due place, will, I think, sufficiently appear from the observations I propose to make, in order to show the necessity which exists for some means of causing and promoting a more general acquaintance with its principles, and deriving more practical benefits from its results.

In almost every condition of active life we find especial and important claims which this science has upon the most careful attention, in order to obtain the first elements of health and comfort; and so in like manner do we find evil results—the loss of

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comfort, health, and even life, as well as deterioration of property—ensue from its neglect. It is probable that in savage nations the immediate suffering arising from neglect, augmented by the absence of the ameliorating arrangements of civilized life, probably render the inhabitants more accurate observers than those to whom changes of weather are of small moment. This is exemplified in the case of shepherds, and others who are much dependent on the state of the weather, and especially by farmers and sailors. Such experience approaches in some respects, and for merely temporary purposes, the accuracy which can only be truly ascertained and permanently recorded under a system of methodical and long-continued observations by WELL-CONSTRUCTED and UNIFORM INSTRUMENTS.

The influence of atmospheric changes upon the comfort and well-being of the living inhabitants of the globe and especially of the human race, cannot be over-estimated; nor would it be easy to enumerate even the more prominent conditions which have so close a relation with health and life.

In an ordinary lifetime a human being depends for existence on the inhaling of air into the lungs a number of times which must be reckoned in *hundreds of millions*, any failure in which, for even a few minutes, would be fatal to life. How much, then, in an operation of such enormous amount of repetition, must depend on the purity and density of the fluid which we breathe!

How important are the means by which the condition of the atmosphere can be ascertained as regards its relation to health, and considered as an absolute means of existence! How important to foresee such changes of the atmosphere as are likely to affect personal comfort, or the success of commercial or other pursuits! How important is it to have regard to its DENSITY, its HUMIDITY, its MOVEMENTS, and its TEMPERATURE!

The undulations of surface in this kingdom are not such as to have an important influence as regards the pressure of the atmosphere; but in mountainous regions we find instances of the great suffering induced by extreme elevation, and consequent tenuity of the air. Baron Humboldt, at a height of 16,000 feet, was overcome by fatigue; "blood burst from his lips and ears; and respiration was affected." Other travellers describe the laborious respiration, extreme debility, severe headaches and depression of spirits in climbing the Himalaya Mountains. It is only in a very modified degree that comfort or health are affected by such elevations as are found in Great Britain; yet, for accuracy of observa-

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tion, it is important that the effect of such elevations on meteorological instruments should be carefully noted. The observations kept at Allenheads and Bywell in Northumberland illustrate this difference in a very distinct manner. The former of these places is 1360 feet, and the latter 50 feet above the level of the sea; the vertical difference therefore is 1310 feet, the horizontal distance being within twenty miles. The uniformity of the atmospheric waves when delineated, after allowing for difference of density, is very remarkable; for in fact the one seems as if copied by a machine from the other, instead of having been laid down by separate and independent observers.

I may here observe that it is only by diagrams* that results of this kind can be made obvious to a great number of persons; the same information is contained in the accompanying tabulated statement; yet a single glance is sufficient to show how much the drawing is superior, as giving a broad and general view of the results, although the Tables, by their minuteness of detail, afford the best means of accurate calculation. The range of maximum and minimum temperature at the above places being also shown, it may be seen that the *maximum* temperature of the mountain district of Allenheads is nearly coincident with the *minimum* temperature of Bywell, seated in the Valley of the Tyne. The two extreme lines show the great difference between the maximum of Bywell and the minimum of Allenheads. The indications of *rain* are also shown by different colours; and the great preponderance of Allenheads in this respect, shown by the blue colour, is exhibited in a much more striking manner than by figures alone.

That variations of the density of the air, and in the other conditions of the atmosphere as regards humidity, the fall of rain, the temperature, and velocity, have all an important bearing on health and comfort, on safety at sea and on land, on the greater or less fertility of the earth, and, in short, upon almost every condition of the circumstances with which we are continually surrounded, is beyond all doubt. The results of such phenomena are often such as to make their vast importance unmistakeably evident; and I propose to show that in like manner the observations which constitute the very essence of Meteorology merit an exact and methodical attention, instead of the vague and indefinite, although universal, notice which the subject now receives.

For merely general indications, a barometer of the commonest

* Some explanatory drawings were laid before the Meeting.

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description suffices to give some idea of considerable changes; so also does an ordinary thermometer show the changes of temperature to which it is exposed. Rain-gauges are kept by many observers, and observations from time to time have been printed at various places. Attention of late has been directed to the subject; yet the practical importance of Meteorology is far from being generally understood and appreciated. The interests of the farmer, the shipowner, the mariner, the miner, and many other extensive classes of society, are so much concerned that it is remarkable to observe how small is the number of persons associated for the promotion of exact meteorology—scarcely, if at all, exceeding one person for each hundred thousand inhabitants of Great Britain. This Society has done more to consolidate observations relating to British Meteorology, than could have been effected by any amount of uncombined operations; and here it would be unjust not to mention, in the most prominent manner, the labours of Mr. Glaisher, who may be properly considered as the founder and promoter of a sound system of meteorological observations. How, then, does it happen that a science relating to objects *which concern every one, which every one speaks of, in which all are interested*, should seem to be so little advanced in its practical results, should still appear to be in its infancy as a science, and to require elucidations of its practical use—which is only another name for its practical importance?

I have alluded to the progress of astronomy and geology; they also were formerly infant sciences. The early history of astronomy is now well known, and what were its results as a science during the vague, contradictory, and unfounded notions which prevailed in its earlier years. If we take all the indications that were then known, and compare them with the contents of the Nautical Almanack, we shall at once see how the science has progressed, and to what an amazing amount of usefulness and precision it has attained. Would astronomy have gained its mighty position if inaccurate instruments and careless observations had been the only means of advancing it? Surely not. Suppose, for instance, that no better intrument than an ordinary spying-glass, or hand-telescope, had been employed, that imperfect clocks had been used; no practical utility, no importance could have ensued. Even at the present time the exact science of the astronomer is useless unless combined with exact instruments; and the precise relation of local time to Greenwich time is in many cases indispensably requisite. To every house in the kingdom exact time may be furnished; and a

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near approximation does actually exist; but it is not so either with *meteorological instruments*, or the observations derived from them. *A great diversity exists*; *no general means of comparison with the well-conducted observations of Greenwich exist*; and Meteorology, as a science, occupies a place which would also now have been occupied by astronomy and geology, if good telescopes, chronometers, and earnest and laborious workers had been wanting. Geology may be said to have been the offspring of the present century; and little more than twenty years have elapsed since I had frequent opportunities of hearing from William Smith, the admitted father of English geology, many interesting anecdotes of the small beginnings of that now most important and useful science.

The practical importance of Meteorology will, I doubt not, be hereafter as generally admitted. Its aims are such as admit of accomplishment, provided the same amount of public attention can be directed to the *only means* whereby progress can be safely and surely made.

These means of progress may be comprised in a few words, namely, *correct observations* made with *accurate instruments in a sufficient number of places*, and *combined under one general system of arrangement and superintendence.*

Having alluded to observations already made in Northumberland, at Meteorological Observatories established by W. B. Beaumont, Esq., M.P., at Allenheads and Bywell, and conducted, under my direction, by Mr. Bewick at one place, and by Mr. Dawson at the other, I am enabled to say a few words as to the cost at which correct instruments can be obtained, and to the ease with which accurate observations may be made. I may also add a word of comment on a kind of moral influence which I believe to be exerted by any system of exact method and observation. Mr. Bewick is a well-known and indefatigable Member of this Society, and to his unremitting zeal the Allenheads observations owe their chief value; but it is right to observe that, the duty of taking the observations often necessarily devolves upon the clerks and assistants, who are in my opinion positively improved in *punctuality*, in *expertness*, and in *accuracy* by the regularity required in taking these observations. The same commendation is due to Mr. Dawson, an excellent schoolmaster at Bywell; and it thus appears that the means of obtaining observers is a difficulty easily solved. To gentlemen of scientific skill and acquirements it would be needless to desire a more elegant recreation; and although careful

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attempts at registration, with instruments of greater or less value as regards comparison with an exact standard, are to be found in various places, as well in the "stately" as the "cottage" homes of Great Britain, yet in the vast majority of cases the means of observation are imperfect and ill understood. In this allusion to the observations of Allenheads, I may mention that one of the surveyors in the office, who was occasionally employed in taking the observations, amused some of his leisure hours by constructing diagrams, some specimens of which I lay before the Society. They exhibit the meteorological conditions at Allenheads during the year 1854, and form a series of highly descriptive tableaux of the weather.

A really good barometer, which is the most useful and also most costly article required, may be procured for from 6*l.* to 10*l.* Those chiefly used by members of this Society who are observers, cost eight guineas. They are greatly increased in usefulness by the examination which they undergo under the immediate care of Mr. Glaisher. The other instruments and apparatus for a complete meteorological observatory cost other 6*l.* or 8*l.*; so that from 12*l.* to 18*l.* or 20*l.* may be considered as the expense of a set of good instruments. Printed sheets for recording observations are furnished gratuitously to the members of this Society; and information, to either present or intending observers, is at all times most cheerfully rendered by the Secretary, by whom the results, when received, are corrected and tabulated previously to their being published in quarterly reports.

For some clear illustrations of the practical importance of meteorology as regards health, I may refer to the valuable communication of Dr. Drew to the British Association, 1851, and to a paper read before this Society in 1852 by Dr. Hoskins, F.R.S., on "Home Resorts for Invalids,"—a subject of peculiarly touching interest. There are few families, indeed, but have at one time or another been made painfully aware that for some loved relation or friend a change of climate was required, with the object (surely a most important one) of restoring health and prolonging life. In that valuable paper, given by the author to the 'London Journal of Medicine,' Dr. Hoskins has justly commented on "the Correlation between Meteorological, Medical, and Agricultural Science" as being no longer the mere recognition of an abstract theory. Most truly does he observe that, although the influence of atmospheric phenomena on animal and vegetable life is engaging some degree of attention, yet it is not so "to the full extent *which the*

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practical importance of the investigation merits and requires." The labourers are still too few.

His admirable account of the climate of Guernsey, based on careful meteorological observation, may be quoted as a good example of how rich a field of observation lies open in attempts to furnish similar data of other places to which invalids resort, often with very imperfect, if not even erroneous and dangerous, information on the very points most essential for the recovery of their health. Meteorology is, indeed, the most important practical guide in the selection of climate, whenever such a change is rendered necessary by any infirmity of health.

It would extend these remarks to an undue length were I to attempt to point out in detail the several cases in which meteorological conditions are of great practical importance; some of them are thus enumerated in one of the Reports of the Society. Meteorology is noticed as being in intimate connexion with AGRICULTURE, with HEALTH, with NAVIGATION, and with ENGINEERING: in these and in many other departments of skill and industry, it would be easy to point out how success has an immediate and exact dependence on meteorological conditions. The communications of Dr. Moffat, of Mr. Doggett, and others, on matters of practical farming, indicate how much may be done in reducing to system what are now comparatively vague, and consequently useless observations. On sending Mr. Doggett's observations on the Wheat Crop (see Report of Council for 1856) to an intelligent farmer, he was much struck with the coincidence of many of the facts stated with data contained in his own journals of the several years described in that communication.

Being desirous to give some illustration, however brief, of these general views by actual instances, I will here mention the substance of a letter received from the same farmer last month. After expressing his opinion that correct meteorological observations "may be of much benefit to farming in many ways," he adds:—

"For instance, on Thursday last (20th of October), a most beautiful sunny day, I began to sow a large field of wheat with all our force. We got half of it or more sown, but not harrowed in or finished. Friday came—6 inches of snow, and a hard frost, which has continued ever since, and likely to do. Now, had I known of so sudden a change, I would not have began sowing that field."

Now what took place in this particular instance must be of very

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frequent occurrence, and the cause of serious loss. The barometrical indications—even of ordinary instruments*—were such as to give distinct warning of approaching change. The interesting communications of Mr. Doggett already alluded to show very plainly, however, that not only as a daily monitor, but as a yearly guide, meteorological conditions may in time be brought into most important practical use. To the fisherman, and still more to the mariner, and to all concerned in sea-faring life, the collection of matured results *may*, and, if persevered in, *undoubtedly will*, furnish information of the most clear and practical character. Even with such means as have hitherto been available, an approach has been made to mark the cycles of change of seasons, the periods marked by regular gradations of increase and decrease of temperature. The completeness and accuracy of such records present one of the most practical as well as most important objects to which science can be directed.

About a year ago, on a short visit to the writer of the letter I have quoted, I was gratified by observing a methodical record of the operations of the farm for one week, in which were readings of the barometer and thermometer at ten, two, and six o'clock.

These observations fairly represent an average of such as are usually made by farmers; on the whole, perhaps, taken with more than usual care, and with instruments quite equal to the generality of those in common use.

I sent a copy of them to Mr. Glaisher, who was glad to find that the farmer was beginning to consider meteorology as one of the subjects worthy of his attention.

The following remarks, copied from my journal, made at the time, will explain the bearing which my reference to these observations has to the subject of this paper.

"November 13, 1858.—I examined a detailed account of the operations of a week, and especially a series of meteorological observations on each day. The practical value of such data is every day becoming more obvious; yet a general indifference to the subject prevails with many who have not devoted their atten-

* Many of the ordinary barometers in use are not to be depended on for any but the most rude and general observations, and in some cases not even for that. Sir William Armstrong (who can greatly enjoy trout-fishing as well as handle a gun), on a somewhat doubtful morning, on the banks of the Coquet, asked the landlady of the inn for a sight of the "weather-glass." The barometer was produced; but *some doubt* was expressed by the landlady as to its *perfect accuracy*. "Somehow or other," said she, "I think *it is not exactly right; for all the quicksilver has run out.*"

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tion to it. Even in this register the observations include only barometrical and instrumental data at stated hours, with a general account of the state of the weather, as 'fine, dry, windy, rainy,' &c. The state of the atmosphere as regards moisture, the direction of the wind or its force, the maximum and minimum temperature, and the amount of rain-fall—all these have yet to be added before the record is complete. Moreover, the observations not having been made with standard instruments, are comparatively valueless as materials for registration and for comparison with results at other places.

"November 25, 1858.—Correct observations in meteorology have an importance which is not possessed by erroneous data: the latter are not only without positive value, but they promote erroneous views, prevent sound conclusions, and entirely impede all progress in those researches of science which are useful only when based on strict truth."

Observing, as I did, the regularity and care with which the variations of the barometer and thermometer had been recorded (in the case referred to), I was anxious to ascertain what value they possessed as scientific data; and I found that, owing to the imperfection of the instruments, and the errors inevitably arising therefrom, the *variation* from the *true wave* of atmospheric pressure *was considerable*, and the range of temperature altogether wrong.

My journal contains several examples of the errors of the barometrical observations, showing for instance a rapid rise instead of a uniform level for twenty-four hours; a rapid rise instead of a very gradual fall; a violent fall during twenty-four hours of nearly uniform pressure; and throughout one entire day a gradual rise instead of a gradual fall.

The variations in temperature were more considerable, and the errors such as would lead a fisherman entirely wrong.

These results having come under the notice of the Duke of Northumberland (on whose property these observations were made), His Grace had the kindness to give a willing assent to a suggestion I had ventured to offer with a view to substitute good instruments, and to obtain correct observations. Not only did His Grace offer to defray the cost of such instruments at Alnwick, but proposed the establishment of meteorological observations at fishing-villages and other places on the coast of Northumberland, where there is reason to believe that loss of life might often be averted by such a foreknowledge of the weather as can be obtained only by means of accurate barometrical observations.

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Attention has of late been directed to the influence of temperature as connected with the adventures of the fisherman. Sir Francis Chantry, the well-known eminent sculptor, who was fond of fishing, always carried a thermometer, and based his anticipations of success on the relative temperature of the air and water. Important and practical deductions have been formed in the herring fishery from the varying temperature of the sea, by attention to which a sort of geometrical scale has been formed as to the greater or less probabilities of the take of fish. In mining also, there is reason to believe that valuable practical inferences may be derived from exact observation of the course of storms, and of the meteorological indications which accompany them, both as regards the pressure and temperature of the atmosphere, as influencing the ventilation of mines, and tending, under different conditions of these elements, to confine or liberate the gases pent up in seams of coals, the explosion of which is so fruitful a source of sad calamity to thousands of families, and enormous waste of time and property as well as of life.

I am sure the Members of this Society will cordially approve the reception which the benevolent proposals of the Duke of Northumberland have met with from the Council, who at their last Meeting directed a letter to be sent in acknowledgment of this important practical aid, expressing also the desire of the Council to take the responsibility of having the several observations made in strict conformity with uniform rules, so as to admit of comparison with correct standards.

I am glad to be able to state also that the Tyneside Naturalists' Field Club, established many years ago at Newcastle-on-Tyne, have actively taken up the subject of meteorology with a view to obtaining accurate local observations, and have printed some results which I have much pleasure in laying before this Meeting.

The labours of local societies and of scientific individuals must become of greatly increased value when combined in one general and uniform system. I may here quote a remark made by Dr. Drew, who says—"Looking at what private observers, like myself, have been able to accomplish in the science of Meteorology, we must arrive at the conclusion that comparatively slow progress will be made until our number is *greatly increased*, and until we embrace in our observations a more extensive range. In addition to the pressure, temperature, and hygrometric state of the air, it would be highly advantageous could we, for all localities, ascertain the rapidity of evaporation, the range and intensity of

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solar radiation, and the state of electric tension,—all which, in their varied combinations, go to make up that general result which we call climate, and which unitedly produce effects upon the natural world, and upon the human frame, according to the preponderance in the atmosphere of one or the other element."

It is not, however, in any short period of years that important results are to be obtained. The true direction of progress lies in removing the erroneous notions which are now too common, as to the indications of inferior instruments.

The stations established by Mr. Beaumont seven years ago, in the Valley of the Tyne and at Allenheads, and those now about to be established in a central part of Northumberland and at several stations on the coast, are, or will be, in immediate co-operation with the Meteorological Society. The Natural History Society of Northumberland, the Tyneside Naturalists' Club; and many other intelligent observers will, I doubt not, unite in giving efficiency to plans which have for their sole object the advancement of a useful science, and its application to benevolent and practical purposes.

When public attention is more directed to the subject, it is probable that greatly increased care will lead to greatly increased usefulness. I would especially mention schools as places where meteorological observations might be kept, under peculiarly favourable circumstances. In the meantime there is one suggestion which I have to make, namely that, whereas in many places where observations are kept the knowledge of them is confined to the persons making them, or to a few persons in the same house or other building, it would be easy to fix in a conspicuous place out of doors a ladder-like scale (a sort of enlargement of what we see in levelling-staves) having a large and prominent index moveable by hand, to be placed daily, at the several observations, so as to show the two preceding observations. Such an arrangement is proposed to be placed at the Alnwick Observatory, where it will be visible over many miles of country, by the aid of a spying-glass of moderate power. Such an indicator would make the weather as well known to the public generally as the time is known by a clock, and by this means not only would public attention be awakened, but the inhabitants of fishing villages and even farmers over a large district might thus perceive the exact state of meteorological indications, instead of being misled by imperfect instruments. The utility and interest of such an arrangement has been proved by a similar contrivance at Allenheads, where a moveable and self-acting scale indicating the quantity of water in a large

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reservoir was readable from the windows of my residence, by using a telescope.

Other suggestions of a practical character arise from the study of general views of this kind; but to enter on detailed examples would extend this paper to undue limits. I hope at no distant time to be able to adduce the progress of the above and similar arrangements, as satisfactory proofs of an increased and increasing recognition of the practical importance of Meteorology.

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British Meteorological Society

1860 January 18th

General Meeting

The Society met at the Rooms of the Institution of Civil Engineers. The President Thomas Sopwith Esq M.A. F.R.S in the Chair.

The following gentlemen were balloted for and duly elected Members ~~and~~

~~The following paper was read by~~

John Whitfield Esqr, Henry Turner, John Mawson, W. Kell and W. Stewart Fally Esqrs.

The following paper was read - On the Meteorology of the Arctic Regions by David Walker M.D.

The author stated that the Meteorology of the Arctic Regions is particularly interesting not only from the occurrence of phenomena which seldom present themselves elsewhere but also on account of the few opportunities afforded of making and recording Meteorological observations.

During the voyage of the Fox all opportunities of such a nature that offered were embraced so far as the instruments supplied were applicable and time or other duties permitted.

As our first winter was spent in an ice drift down Baffin's Bay and Davis Straits many observations were necessarily left unrecorded but those which were noticed are of importance as shewing the Meteorological effect of being

placed in the middle of a large mass of ice.
In the month of January a set of hourly observations were made in order to find out the hours of maximum and minimum barometric pressure. Curiously enough there was found to occur only one maximum and one minimum in the twenty-four hours. shewing that the effect of being surrounded by a large body of ice acted precisely in the same manner as if the observing station had been in the centre of a large continent. the hours of this maximum are minimum pressure were 8 AM and 11 PM.
The fluctuations of the barometer were between 28.750 and 30.990 The lowest degree of cold registered during 1857 and 1858 was −48°0 occurring during a calm. The lowest mean monthly temperature during the interval was −24°.8 for January and the hours of maximum and minimum temperature were Maxima 11 AM and 8 PM. Mina 7 AM and 4 PM the lowest degree of cold was always noticed during calm weather and generally at the time of full moon.
Attached to the extremity of the yard arm by an insulated support there was a fine wire which was carried to the ice so as to be connected to another which was immersed in the water beneath. Here by means of the electroscope the variation in the amount of atmospheric electricity was noticed and the times of

minimum tension registered. Owing to the rough instrument used the hours of maximum tension could not be accurately recorded. The hours of minimum intensity were noon and 9 PM. The presence of the aurora was found to influence considerably the gold leaves of the electroscope the leaves at such times diverging with greater force and remaining separate for a much longer time than usual.

Some parhelia and sun halos were seen during this winter and spring; the general diameter of these halos was 45° although some of 90° were observed all these halos were prismatic the red being internal. Paraselene and moon halos were more frequently noticed one set of Paraselene seen on the 6th of December 1867 were very well marked three mock moons occurred on a halo (round moon) of 45° diameter. above the halo occurred an arc of a large circle touching the halo, higher up internal to this ~~halo~~ arc another arc occurred running round the heavens. in a plane parallel to the moons horizontal diameter. and passing through it was a narrow band of light about 2° broad having three moons occurring in it directly opposite the real moon and two side paraselene. Several other peculiar halos and appendages of light were also seen. At times observations on the light emanating from parhelia or sun halos were made with the polariscope, when

such light was always found to be more or less polarised and in the same plane, the corresponding image in such being brighter. The amount of polarisation was never greater than half the plane in which the object was viewed was either parallel or perpendicular to a plane joining the part looked at with the centre of the sun.
Two hourly observations were taken with the barometer during the winter of 1858 and 1859 at Port Kennedy Lat 72°.1 N. Long. 94°.15 W. and a set of hourly observations in January these latter shewed two maxima and two minima the former at 9 AM and 5 PM the latter at 6 AM. and 2 PM. the two max.^a & two min.^a occurred within twelve hours. so that there was an equal period without any varying fluctuation. The nearest station at which registers had been taken by other observers was at Port Bowen Lat 73°.4 N Long 88.5 W. on the opposite side of Prince Regents Inlet, here observations taken by Capt.^n Parry. shewed two max.^a and two min.^a the former at 4 AM and 5 PM. the latter at 10 AM and 11 PM. During the month of July at Port ~~Bowen~~ Kennedy the barometer shewed only one maximum and one minimum in twenty-four hours. the former at 2 PM. the latter at 3 AM. The lowest register during our stay at this place was 28.670 inches the highest 31.070 The greatest monthly mean height was 30.191 in April 1859. From November to April the

fluctuation was never more than 1½ inches.
Throughout the greater part of our stay at Port Kennedy the temperature of the air was registered every two hours. The lowest degree of cold noticed was −49°.0 F. The lowest registered was −48.0 F. Although it has before been stated that the lowest degree of cold was noticed during a calm, yet we experienced a temperature of −47.0 during a gale of wind. The lowest mean monthly temperature was 36.0 F in February. The mean winter temperature (three months) being −34°.2. The highest mean monthly temperature was 40°.1 The maximum temperature being 55°.0 The annual mean temperature was 2°.3
During the spring and summer of 1859 the black bulb thermometer was constantly used. This thermometer was suspended on a line between two poles about four feet above the snow so as to be quite free from any rays thrown upon it by reflection. The bulb of the thermometer was enclosed in a tube tightly corked so as to exclude any current of air. The maximum generally occurred between 11.45 P.M. and 0.45 A.M. dependent on the state of the sky at the time. The highest temperature registered was 101.5 on the 20th of June the temperature of the air in the shade was 49°.0 The greatest difference between the two thermometers was 62°.0 on the 19th of May the air being 25°.0 These

observations are of considerable importance as bearing upon the subject of the rapid summer vegetation in the Arctic region.

On the 14th of September 1858 a thermometer was placed in a brass tube sunk 26 inches in the soil this thermometer was read off at intervals of a week or a fortnight during 11 months. it was found that the temperature gradually decreased during the winter and reached its minimum of zero on the 16 of March. from this date until our departure for Port Kennedy at this depth was 31°.8 the air being 38°.0 A few observations were made on Snow Crystals as I had not a microscope on board I was able only to note the large forms unfortunately the minute forms which are most interesting were not examined. the crystals noticed were seen at temperatures between 6° and 25°.0 Nos. 3.4.5.15.22.32.33.34.46.67.73 of the forms observed by Mr Glaisher in 1855 were noticed

About half of the aurora noticed at Port Kennedy were in the direction of a space of water which remained open during the winter.

The electroscope was found to be affected by the presence of the aurora especially when passing through the zenith the general direction of those passing through the zenith was from North to South.

Several fine aurora were noticed on the home passage between the entrance of Davis Straits and the coast of Ireland, these generally exceeded in brightness those seen in the Arctic Regions.

During 18 months of our voyage 12 hourly observations on the amount of atmospheric ozone were made. For this purpose, a piece of filtering paper saturated in a solution of Iodide of Potassium 1 grain to 100 of water and afterwards dried was placed in a square box pierced with holes. the box was elevated to a height of 60 feet and the paper changed every twelve hours. A box we used because such paper by mere exposure to light independent of the presence of ozone would gradually become coloured by the setting free of the Iodine, and it was also necessary to shield the paper from rain or snow at the same time to have it freely exposed to the air. The scale of colour was produced by by saturating paper in a dilute Tinct of Iodide of L Phar, 2 of Spirit to 1 of Tinct formed the highest colour No. 12. No 11 was formed by 4 of Spirit to 1 of Tinct and so on. The mean monthly amount of ozone in the air seemed to be influenced by the degree of cold and the mean force of the wind. As moisture is one of the ways in which ozone may be destroyed, perhaps to the absence of moisture and not to the presence of cold is this effect referable. From a comparison of the daily results there seems to be more ozone present during

the days in which the wind is North and West than when South and East. The prevailing winds throughout the period of observation were Northerly. At one time I was inclined to think that the presence of aurora had an increasing effect on the amount of ozone but the data are too few definitely to say so. There did not seem to be much difference between the mean amount of ozone in the air of Baffin's Bay and that of Port Kennedy.

A vote of thanks was unanimously passed to Dr. Walker for this paper

A paper was began to be read by Dr. on the Meteorology of India

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British Meteorological Society
1860 March 21st.
General Meeting

The Society met at the Rooms of the Institu-
-tion of Civil Engineers. the President J. Sopwith
M.A. F.R.S. in the Chair

The following gentlemen were balloted
for and duly elected Members
J. Mc Landsborough. J. W. Baselgatte
C. A. Saneeau Esqrs. & Professor Tennant.

A paper was read on Dust Storms, Dust
Columns, & on the Simoom or Poisonous
Winds of India by Henry Cook. Esqr. M.D.
The Author stated that there are certain days
in which however hard and violently the
wind may blow, little or no dust accom-
-panies it, whilst at other times every little
puff of air or current of wind raises up and
carries with it clouds of dust, and at these times
the individual particles of dust appear to be in
such an electrified condition, that they are
even ready to repel each other and are con-
-sequently disturbed from their position and
carried up into the air with the slightest cur-
-rent.
To so great an extent does this sometimes exist
that the atmosphere is positively filled
with dust & when accompanied by a

strong wind nothing is visible at a few yards and the sun at noon day is obscured this condition of the atmosphere is evidently accumulative it increases by degrees until the climax is reached when after a certain time usually about twenty-four hours the atmosphere is cleared and equanimity is restored Dust columns appear under a similar condition of electrical disturbance or intensity on calm quiet days when hardly a breath of air is stirring and the sun pours down his heating rays with full force, little circular eddies are seen to arise in the atmosphere near the surface of the ground, these increase in force and diameter until a column is formed of great height and diameter, which usually remain stationary for some time and then sweep away across the country at great speed, and ultimately losing gradually their velocity of their circular dissolve & disappear. The Author had seen in the valley of Muzgochar which is only a few miles across and surrounded by high hills, on a day when not a breath of air stirred twenty of these columns, these seldom changed their places or but slowly moved along the level tract & they never interfered with each other

The Author then spoke of the Simoon that deadly wind which occasionally visits the

deserts of Cutchee and upper Sind, which is sudden & singularly fatal in its occurrence, invisible, in-tangible & mysterious, its nature alike unknown (as far as the author is aware) to the untutored inhabitant of the country it frequents as to the European man of science, its effects only are visible, its presence made manifest in the sudden extinction of life whether of animal or vegetable over which its influence has extended.

The Author gives the results of his information respecting the simoom as follows.

1st. It is sudden in its attack.

2nd. It is sometimes preceded by a cold current of air

3d. It occurs in the hot months (usually June, & July)

4th. It takes place by night, as well as by day

5th. Its course is straight & defined

6th. Its passage leaves a narrow "knife like" tract

7th. It burns up or destroys the vitality of animal & vegetable existence in its path.

8th. It is attended by a well marked sulphurous odour.

9th. It is described as being like the blast of a furnace and the currents of air in which it passes are evidently greatly heated.

10th. It is not attended by Dust, Thunder or lightning

and concludes his paper by saying if it then be neither a phase of sun stroke, lightning malaria, or miasmata, in a concentrated

form; and asks the question, What is it? or to what is it to be referred.

A paper was then read by G. A. Rowell on the great storm in Wiltshire on Decr. 31st. 1859.

The accounts in the public papers describe the storm as a whirlwind, Mr. Rowell had carefully examined its track; and not only found no proof of a whirling of the wind, but that many of the effects of the storm could not have been produced by currents of air moving either in circles or direct. He believed the violence of the storm to have been the result of a rarefaction, or partial vacuum in the Storm Cloud and that the destructive effects were produced by the expansion of the air within or beneath the buildings &c. owing to the diminution of atmospheric pressure as the cloud passed over: or by the rush of air into the rarefied space as it passed onward

Mr. Espy & Mr. T. Hopkins ascribe such upward currents of air as might have produced such a storm to the expansion of the air from the disengagement of latent heat by the condensation of vapour, that the heat disengaged by it must have put a stop to all further condensation at the time, whereas the like heavy rain accompanied the storm throughout The theory advanced by Mr. Rowell is that

evaporation is produced by the minute par-
-ticles of water being buoyed up into the air
by their coatings of electricity: when on their
agglomeration into drops of rain; as the sur-
faces of the drops is so much less than
that of the aggregate surfaces of the vapour
of which they are composed, a vacuum is cre-
-ated on the instant from formation of every rain-
-drop by the passing away of the surplus electri-
-city consequently a rarefaction or partial
vacuum would result from the formation
of rain in accordance with its extent & so
long as it might continue.

The Storm began near Calne, and continued
in the general direction of the wind over about
eleven miles; the width as marked by
its destructive effects being from 100 to
400 yards ~~in ...~~. The great violence did
not last more than from three to five mi-
-nutes at any one place. The fall of rain
was enormous with thunder & lightning
and the Clouds were so low as to seem to
sweep the ground. It was accompanied by a
terrific roaring noise, & the hailstones fell of extra-
-ordinary size & form. A vast number of trees
were blown down and much damage done by
the wind, amongst other effects the slates were
taken off roofs on their leeward side, the roof
a shed built of elm timber and covered with

blue slates, the estimated weight of which is four tons, was lifted right off the walls & deposited on the ground quite clear of them, without a single brick being disturbed. This shed was protected from the effects of the wind by a much loftier building about twenty-five yards from it on the windward side. A waggon weighing one ton 2 Cwts with more than 1 Cwt of hay in it, was lifted right over a hedge, to clear which it must have been carried more than eight feet in height. The under surface of this waggon was not more than sixty-six square ~~yard~~ feet, a pressure of thirty-nine pounds to the square foot would not have lifted the waggon from the ground even if the wind could have blown so as to act perpendicular to the bottom of it. Other facts were mentioned to show the effects could not have been produced by a direct wind; and amongst them was that of the two ends of a garden wall being both blown inwards.

Thos. Sopwith

British Meteorological Society
1860 June 6th

The Society met at the Rooms of the
Institution of Civil Engineers. The President
T. Sopwith Esqr. M.A. F.R.S. in the Chair.
The following gentlemen were balloted
for & duly elected members. S. W. Silver,
J. Hailin & E. J. Collingwood Esqs.
The following papers were read
1 - On Ozone by Dr. Moffat.
2. On Ozone by Dr. Smallwood.
3 On the Meteorology of Scarlatina by G. V. Vernon

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1 - Ozone by Dr. Moffat.

The points of ozonometry, chiefly treated
upon in this paper, are, the connexion
between ozone & humidity, the method
of conducting ozonometric observations
& the effects of light upon ozonization, the
flowering of plants &c.
The connexion between moisture and ozone
was for a long a great perplexity to me in
making ozone observations, but for some
time I have viewed it as merely coincident.
We find for instance the maxima of ozone
& humidity upon the sea & on the sea shore
& that they diminish as we proceed inland
& that ozone disappears with the dry North
Wind and reappears with the moist.

South Wind But it has been found from observation that as ozone increases humidity decreases with an increase of height above the level of the Sea Again if the maxima of ozone and humidity were inseparable we should the maximum of ozone with complete saturation which is not so, for during foggy weather it ought never to be absent, yet as a rule, it is seldom ~~seen~~ perceived, & when it is it is at its minimum It has been found that ozone is often at its maximum on days of precipitation of rain or snow. In this case, again however, the connection is merely coincident, for the same for the same Meteorological condition which leads to humidity & precipitation, leads also to increase in the quantity of ozone. It has been stated that ozone disappears with the North wind & reappears with the South wind. The reason is simply this the North Wind is a dry land wind and holds in suspension the products of decomposition While the South wind is a sea current and is consequently loaded with moisture & ozone The Sea Wind as it advances drives back or absorbs into its current the dry land wind & consequently a decrease in the reading of the Barometer and again the North or land wind in its turn drives back the sea

wind and causes an increase in the readings of the Barometer; hence we have ozone, moisture & falling Barometer with S. winds, &, no ozone dry air & increasing Readings with the N. wind. Whether ozone will be absent or present in foggy weather depends upon the process by which fog is formed. If for instance the temperature of the superincumbent air is lower than that of the surface of the earth fog will be formed in the lower strata, with this there will be no ozone. If however the surface of the Earth is colder than the higher strata the lower or cold air will condense the vapour in the higher strata & fog will be the result with this there will be ozone. (During ~~foggy~~ frosty weather with a continuance of N or NE winds the barom begins to decrease the S. Wind will set in, & while the wind vane still points N, it will gradually suck up the lower or N wind as it sweeps to colder regions this warm in coming in contact with the colder current gives out its moisture in the form of fog which on falling to the ground forms a covering of ice. With this kind of fog ozone is not only always present but is often at its maximum. It very often happens that 1.50" rain will fall with increasing readings of the Barom. during a Calm or with a NE or N.

or N. wind and ozone will scarcely be perceived whilst with the same amount of rain, decreasing readings of the Barom & S. or S.W. Winds Ozone will be at its maximum indeed often with a fall of 0.20 in Rain, together with a rapid fall of Barometer & S.W. winds or even with no rain at all we see ozone at its maximum.

2 Ozone by Dr Smallwood

In a paper read, a few years back, at Montreal an opinion, founded on about 6000 observations, was expressed that the presence & developement of ozone were always attending by the humidity of the atmosphere & that the observations of the Hygrometer led to certain indications of the presence of ozone.

Since this time upwards of 3000 observations have been made which still confirm the fact that unless the air is moist there is no ozone for in perfectly dry air no ozone has been detected even when it has been chemically formed by means of Phosphorus its presence ceases to be appreciated in dry air, & further when it is decomposed by heat the vapour which it contained has been found to be set free.

During the time of the Cholera in 1854 there was a deficiency of ozone. The Cholera broke out about the middle of June continued during July & part of August. The mean degree of humidity was ·705 being ·050 below the average of preceding years for the same month

In these investigations it was found that paper, prepared under Dr. Schoenbein & Dr. Moffats directions, was insufficient and recourse was had to fine calico which having been previously washed in distilled water & then dried, was either dipped into the Solution of Starch and Iodine or the Solution was spread evenly on one side, it was then quickly dried & then smoothed over with a hot smoothing iron, & thus prepared it was found to answer the purpose much better than paper

During the prevalence of the potato rot the test paper which was suspended between the ~~two~~ rows of plants exhibited a great amount of ozone, but it may be remarked that at time the disease broke out there had been rain followed by a hot sun thus forming an atmosphere suited for the developement of ozone; and whatever may be the influence

of vegetation on its amount in Summer it becomes sealed up in Winter, waiting for the return of spring to afford ample means for prosecuting the subject.

3 On the Meteorology of Scarlatina

The investigation contained in this paper was commenced when Scarlatina was unusually prevalent with the hope that it might to some extent elucidate the effects produced by the atmosphere on this disease.

When the mean weekly mortality from Scarlatina for 10 years is laid down, it will be found that the mortality is the lowest during the 8th week. from this week there is an almost continual increase until October during this month it was nearly stationary. the greatest increase took place between the 34th & 40th weeks or a short time after the maximum mean weekly temperature had occurred this period is also one of very sudden increase in the degree of humidity

The principle of investigation laid down was to trace the effect produced by

element when above or below the average.
During the March & December quarters it was found that increased Atmospheric Pressure was accompanied by a diminution of the mortality from Scarlatina & vice versa. In the June & September Quarters increasing readings were accompanied by a high rate of mortality, & diminishing readings by a low rate. It has also been found that a temperature below the average produces a considerable in the Mortality from Scarlatina on the mean of the year during a period of 38 years over which the investigation extended, it appears to have increased 17% by a diminished temperature: in the March, June, & December quarters a temperature, above the average, is accompanied by a diminished mortality & vice, versa, whilst in the September the converse holds good but this Quarter is the one in which the mean temperature is the highest
A daily range of temperature, above the average, appears to affect the yearly mortality for the year about 14½ %. A daily range above the average increases the mortality in every quarter except the March one.

An increased amount of Vapour in the atmosphere reduces the mortality in every Quarter the greatest effect being produced in the March Quarter and the least in the June.

A degree of humidity above the average reduces the mortality, whilst one below the average increases the mortality 20 p/c.

In the March & June Quarters excessive humidity is accompanied by increased mortality & vice versa but in the September & December Quarters diminished humidity increases it 3.9 & 7.3 p/c respectively.

A fall of rain below the average appears to increase the mortality & in every Quarter in which the mortality exceeded 1200 the rain fall was much below the average.

A increase of 26 miles per day in the mean daily motion of the air produced a reduction of 21½ p/c in the mortality thus showing that a stagnant condition of the atmosphere is highly favourable to the disease.

Nath Beardmore
Chairman Nov 21st 1860.

British Meteorological Society

1860 November 21

The Society met at the Rooms of the Institution of Civil Engineers

Nathaniel Beardmore Esqr. in the Chair

The following gentlemen were balloted for & duly elected members of the Society

Edgcumbe Chevallier & H. P. Burt Esqr.

A paper was then read on the Meteorology of 1860 by James Glaisher.

The author commenced by stating that from October 1st ~~1859~~ to the 20th 1859 the weather was fine & the mean daily temperature was several degrees in excess (6°). On the 21st a sudden & very severe cold set in the depression on the 21st & 22nd exceeding 12°, & was as much as 15° on the 23rd, & 16° on the 24th this cold period continued with the exception of the 8 days ending November 8, which were warm to the 24th of December. Between Dec. 14 & 19 the cold was very severe, the defect of temperature on the 16th to the 19th was as large as 15°, 17°, 16½° & 15½° the average daily defect for the 45 days ending December 23 was 2¼°.

A warm period set in December 24 which continued till January 24, 1860, the excess of temperature on the 1st day of the year was 16°.

that of the 2nd was 11° & of the 3rd was 13°, whilst a fortnight previous the temperature was as much in defect & from January 1 to January 24 the daily excess averaged 4°. On January 25 a cold period set in which continued with but trifling exceptions to May 8th from May 9th to May 26 the days were warm the mean temperature averaging 5½° in excess. From May 27 till the middle of October the days were cold. During this interval the temperature was in excess on 11 days only the average excess being less than 1°, whilst on the remaining 130 days, there was an average deficiency of 4°. Diagrams were exhibited showing the the mean temperature of each during the years 1859 & 1860 & their departures day by day from their averages

The mean temperature of the 12 months ending October 1860 was 47°.2 being 2°.1 below the average of the preceding 19 years.

In three months viz January, May & October the mean values were exceeded by 1°.5, 1.0, & 0°.9 and the remaining nine months were cold particularly so during the month of June. Diagrams were shown comparing the temperature of the present year with that of last year & several other years distinguished by having been remarkably hot or cold

The most remarkable period of the year is that from May 27 to the middle of October, the mean temperature of the four months viz June, July, August, September was 55°.9 By comparing the temp of this year with that of 1771, it is found to exceed the temp of this year by 0°.1 only & there is no other instance on record as far back as trustworthy records extend of so cold a summer as the one just passed. The mean temp of the three months July, August, & September was 56°.2 & once only viz in 1817 has the mean temperature for these three important months been of so low a value.

Since October 1859 the reading of the barometer has been very variable particularly in the six months ending March 1860.

At the beginning of October at the level of the Sea, the reading was a little above 30 inches, it decreased by the 11th to 29.5 in & was constantly changing to considerable amounts till the end of the month. On Novr 1st the reading was as low as 28.8 in, it rose to 29.9 in by the 2nd, fell to 29 in the next day & then increased to 30.7 in by the 10th an inspection of the diagrams exhibited will shew the amounts & frequency of the change during the remainder of this month. In Decr the reading was as high as 30.6 inches on the 10th

and as low as 28.7 in on the 26th It then increased to 29.9 in on January 2.

It would be tedious to follow in detail the subsequent frequent changes.

		below	above
In October 1859	Pressure below the average	.168	
November	above		.068
December	below	.209	
January 1860	"	.248	
February	above		.074
March	below	.145	
April	above		.064
May	below	.016	
June	"	.090	
July	above		.043
August	below	.244	
September	"	.071	
October	above		.174
8 months		1.191	+423.

The fall of Rain for the nine months ending Sept. was 25.1 in exceeding the average by 6 inches and it is the only instance as far back as 1815 of a fall of rain exceeding 28 inches. This fall varied at several stations from 17 inches at Scarborough to 42 inches at Lampeter in Wales.

The Rain fell at Greenwich in one month viz June exceeded its average by 3.9 inches the total fall being 6 inches has not been

since 1815, in 1838 it was 5·1 inches & in 1852 it was 4·6 inches but these are the only instances of rain exceeding 4½ inches. This large fall (4·4 inches) however was greatly exceeded in the South of England for instance at Southampton & in other parts of Hampshire the fall was as large as 9 inches. This gradually decreased going northwards to 6 inches at Greenwich & to 1½ inches at Scarborough in Yorkshire.

Thos. Sopwith

British Meteorological Society

1861 January 16

The Society met at the rooms of the Institution of Civil Engineers

Thomas Sopwith Esqr. M.A. F.R.S in the Chair.

The following gentlemen were balloted for and duly elected members of the Society

A Johnson Esqr. of Crutched Friars, and Lieut. W. Chimmo R.N. of H.M.S. Sea Gull, Isle of Skye.

A Paper was then read on Barometer Indicators by T. Sopwith Esqr. M.A. F.R.S.

The author stated that the members of the Society were aware of the generous offer made by His Grace the Duke of Northumberland to defray one half of the cost of establishing meteorological stations on the Coast of Northumberland. This philanthropic measure did not rest here, The Royal National Life Boat Institution have as it were taken the clue, and placed good, strong, and useful Barometers at most of the Life Boat Stations in the United Kingdom; with the view of saving life and property. The object of the present paper was to describe an Indicator of sufficient size, that it might not only be distinctly seen at some distance out at sea but also by persons on land.

Figure 1 is the model of an indicator erected about a year ago at High House Farm near Alnwick. It was placed on the front wall of the house; being at an elevation of four hundred feet above the sea level. The range was

made from 27 to 31 inches, and each inch of the Barometer was represented by fifty inches on the indicator; thus each hundredth part of an inch on the Barometer was represented by half an inch on the indicator; so by the aid of a pocket telescope this indicator might be seen at a distance of two miles; but it having been found of more value by the sea side than where it was, it has since been removed to Alnmouth and the range has been made to extend from 28 to 31 inches; this indicator was provided with two vanes one red, and the other black. one of these was to shew the position of the mercury in the barometer tube at the last reading but one and the other at the last observation.

Supposing the observations to have been taken at nine o'clock each morning; one of the vanes bore the inscription "Yesterday at nine o'clock"; and the other "To day at nine o'clock". Supposing the morning was fine, the sky clear, the sea calm, and the two vanes near together the fishermen would go to sea in comfort and security, but if to day's vane is considerably lower than that of yesterday they do not go; the following anecdote shews the use that these barometers have been to the fishermen wherever they are placed.

Admiral Cator in writing to the Royal National Life Boat Institution says, that one evening about the beginning of October last; the fishermen were preparing to go to sea. Some of them observed the fall of the barometer, while others disputed its

utility and value, and even treated it with derision. The majority of them however decided that they would not go while the barometer was falling. A few hours afterwards a terrific gale of wind from off the land came on, when they expressed their firm conviction that every one of them would have perished had they gone to sea, as they would have done, had there been no barometer on the coast.

The mechanical construction of the indicator is easily explained. The vanes or pointers are attached to wire ropes one on each side, these turn freely on a large pulley at the top and bottom, the lower pulley being turned by a handle in the same form and used in the same manner as in winding up a clock.

Another form of indicator designed by Capt. Washington consists of four fans, each of which presents an index, a scale with black and red pointers, this indicator may either be placed on the top of a building or elevated on a pedestal some 15 or 20 feet from the ground. Not only the mariner, and fishermen at sea, but way-farers on either side, and even the in-dwellers of houses can at all times be observers of such an indicator.

Figure III represents another form of indicator designed by Mr. Glaisher. It is of nearly a circular form and consists of an upper semicircle somewhat larger than the lower one. The pointers in this design resemble those of a Church-clock and the rising or falling of the mercury is shewn

pretty much in the same manner as in the wheel-barometer in common use. The difference in colour as well as the inscription on each pointer shews which each pointer indicates, but in the lower or lesser semicircle there are only two divisions right & left of a perpendicular radius. When the mercury is falling a separate pointer is moved to the left hand division, and to the right hand when the mercury is rising. This is a very convenient form for being placed against the wall at some height from the ground and the additional pointer is extremely useful as drawing attention to the most important point of observation.

The author concluded by stating that these three forms can only be considered as experimental trials - when placed in suitable situations it will be found which is best adapted for other situa-tions, and various additions will probably be added.

Another paper was then read "On the Weather during December 1860, & the first ten days of January 1861" by James Glaisher Esqr. F.R.S.

The author stated that till the 13th. of December the tem-perature was above the average, the minimum generally being equal to the average mean temp for the season. On the 6th it rose to 54° & fell to 45½° then rose to 52° on the 7th & fell to 47½°. From the 13th. the temperature declined rapidly and became

remarkable. On Decr. 24th the temperature only rose to 28°, it fell to 16° at night and to 8° by 7h A.M. on Christmas Day, it rose to 12° by 9h A.M. and to 30° by 10h P.M. this was the maximum for the day.

On the 26th the temp ranged between 26° & 35°
—— 27 —— 28° & 35°
—— 28 —— 24° & 35°

but on the morning of Decr 29th it was as low as 7° and at 9h A.M it was 14½°, & 24½ by 10h A.M, being a rise of 10° in one hour, it rose to 32° by midnight and to 46° by 9h P.M. on the 30th & a rapid thaw then set in. The temp on the 1st was as high as 47° it fell to 32° by midnight and to 28° by the morning of the second it then rose to 34° and fell to 25° by midnight

On the 3rd & 4th the temperature ranged between 25° & 34° each day
5th —— 22° & 33°
6th —— 17° & 29°
7th —— 18° & 33°
8th —— 15° & 35°
9th —— 11° & 35°
10th —— 13½° & 24°

This day was the coldest day within the 15 days of the year for 20 years.

The cold weather is by no means unprecedented both in extreme severity & continuance

The mean temperature of December 24, 25, & 29 were 22°.4; 20°.2, & 23°.0 respectively. This temperature was exceeded in severity

in 1830 Decr. 24 the mean temp was 18°.4

1830 " 25 18.6

1860 " 23 20.2

So that in the year 1830 the 24th & 25th of December were more remarkable for the severity of the cold as shewn in the mean temperature, than in the present instance, but there is no instance as far back as 1814 of so low a temperature in December as those shewn on Christmas Day and on the 29th day The Gardeners Chronicle which has collected from various sources the temperature of December 25th. shews that the temperature went as low as −15° at some places whilst at others it did not ~~go~~ fall below freezing point.

Thos. Sopwith

British Meteorological Society

1861 March 21.

The Society met at the Rooms of the Institution of Civil Engineers.

T. Sopwith Esqr. M.A. F.R.S. &c President in the Chair,

A Paper was read by Mr. H. S. Eaton on the Dew Point at low temperatures:—

The Author exhibited some diagrams showing the comparative values of the factors by which the difference between the dry and wet bulb thermometers must be multiplied to obtain the amount of depression of the dew-point below the temperature of the air between 50° and 10° of Fahrenheit's thermometer and which were deduced from simultaneous observations made with a Regnault's condensing hygrometer and a dry and wet bulb thermometer he further compared them with values given by Lieut. Noble R.N. from results obtained with similar instruments at Toronto, and with Mr. Glaisher's factors determined by a large number of observations with a Daniell's hygrometer. After remarking

that the use of Daniell's hygrometer was open to objections from which Regnault's was free. Mr Eaton proceeded to show that above 32° the factors obtained by the latter instrument were slightly in excess, that between 31° and 15° they were in defect, and below 15° again in excess of the former, that the discrepancy was small down to 15°, but that below this point the factors obtained by Regnault's hygrometer increased steadily, while those by Daniell's remained nearly constant, a circumstance calling for additional observations of the Dew Point at low temperatures

A Paper was then read "On the loss of Colour of Ozone Test Papers" by Dr Moffat.

The author commenced by saying that

Some years ago he communicated to this Society the results of his investigation into the loss of color of ozone test papers. He then stated that sulphuretted hydrogen was the chief cause of discoloration, but as other substances or some atmospheric conditions appear to have a bleaching effect he continued his observations. He has since observed that a humid atmosphere removes the brown colour, and he gives a table showing the degrees of shade lost by the papers under different degrees of atmospheric humidity.

In his experiments Dr Moffat used two

kinds of test papers. One prepared with Iodine in a solution of shell lac; the other prepared with Carbonate of lead in solution with Gum Arabic. By using these two sets of papers he could distinguish whether moisture or sulphuretted hydrogen was the bleaching agent, for when the Iodine papers lost colour by the action of sulphuretted hydrogen the carbonate of lead papers became brown, whilst, when moisture was the bleaching agent the opposite action took place.

Dr. Moffat used his Iodine test papers in sick rooms and the general results of his observations are that lose colour more rapidly in beds with than in beds without curtains and more rapidly in bedrooms of fever patients than in other apartments and he gives in detail his observations on the effect produced on these papers in a house in which there were two fever cases. One of these cases assumed a diphtheretic character. Papers were suspended in each room and in the apartments occupied by the family. In the apartment occupied by the family the paper lost a shade in forty-eight hours that in the room of the mild case of fever was lighter, but that in the bedroom of the diphtheretic patient was bleached almost to whiteness. Dr. Moffat next gave the results of some experiments upon ammonia as a cause of discoloration

Ammonia he observes has a bleaching effect but it appears that it is ~~xxxxxx~~ only when the atmosphere is highly charged with it that it has any apparent action. He next referred to Dr. Richardson's experiments as given in his Lelsonian Lectures. Dr. Richardson there states that Ammonia is the type of substances which prevents oxydation and endeavours to prove this by treating a solution of Iodide of potassium and starch with peroxide of hydrogen. In this case blue Iodurect of Starch is formed but if a little ammonia be added to the solution the blue colour does not appear, a fact that Dr. Richardson attributes to the Ammonia having prevented the oxidation of the Potassium and the consequent liberation of iodine. Dr. Moffat on the contrary states that the ammonia does not prevent oxydation of the Potassium and that the Iodine is set free and the reason that it does not combine with the Starch and form the blue Iodurect is, simply because it has a greater affinity for the hydrogen of the ammonia with which it combines and forms hydriodic acid which combines with the oxide of Potassium (Potassa) while the other elements set free rearrange themselves and form new combinations. Tests papers were ~~xxxxx~~ exhibited to shew that ammonia did not prevent

the oxidation of potassium by atmospheric ozone others shewing the presence of ammonia in the air while the ozone test papers were exposed By a very simple experiment described by Dr. Moffat (the addition of a few drops of liquor ammonia to water coloured with Iodine) it was shewn that the combination of the Iodine with the ammonia was instantaneous.

Thos. A. Smith

British Meteorological Society

General ~~Council~~ Annual Meeting

1861. June. 12 - 7 p.m.

Thos. Sopwith Esq M.A. F.R.S. &c President in the Chair.

The minutes of the last meeting were read & confirmed.

The Secretary read a list of the books presented to the Society since the last ordinary meeting.

Jno. E. Woods Esq. F.R.G.S. of Camberwell Grove; & Isaac Cartwell Esq. of Carlisle were ballotted for and duly elected members of the Society.

Arthur Jno. Joyce Esq. of 31 Upper Gower St. Bedford Square was proposed as a member of this Society by Thos. Sopwith & seconded by Charles V. Walker & Dr. Lee.

The President introduced Mr. Joyce, who was present, as the author of a plan for publishing a "Daily Weather Map" of the British Isles. Specimen maps were exhibited.

A paper of which the following is an Abstract was then read by the Secretary.

"On the Auroral Phenomena of the Northern Ocean in 1860". - By J. E. Woods Esq, F. R. G. S., Late Secretary of the Expedition of the "Fox" in 1860.

(Abstract)

The "Fox" a vessel rendered famous from having conveyed Mc Clintock to the Arctic regions on the expedition which was successful in finding traces of Sir J. Franklin, was despatched in July 1860 by the promoters of the North Atlantic Telegraph, in order to make surveys of the coasts of the Faroe Islands, Iceland, Greenland and Labrador. - From August to November inclusive she was in the latitudes, where Aurorae are especially manifested.

The first Aurora noticed was on August 19 at 10 p.m. off the S. E coast of Iceland; it presented no remarkable features. - The next was on Aug. 23. at Reykiavik in Iceland. - This was very brilliant, extending from S. E to N. W and it had a motion broadside toward the observer, southward, passing the Zenith and disappearing southward like the

luminous tail of a comet. On the following evening an aurora appeared with a broadside movement in the reverse direction or Northward. These with certain minor appearances were specimens of a class of aurora, which the author terms Second Class, and which were not uncommon; - the details of which are described. He sometimes saw this description of Aurora on wet or misty nights, when a break in the clouds allowed the sky to be seen. He noticed also that although the centres of the Auroræ were in many instances in the Magnetic Meridian, this was not always the case. He had seen centres in almost every part of the heavens; and changing from place to place in either direction.

On Sep. 7. in Lat. 64° N. and Long. 28° W, he saw a specimen of what he terms a first class aurora; - a scroll 90° in length and 5° or 6° in depth, - an arc of great extent, with its limits well defined; - perpendicular pencils of various coloured light, moving rapidly to E or to W; but always perpendicular, no

matter how rapid the motion. The whole moved broadside southerly till it reached the zenith. The sky is generally clear and the air calm when this kind of aurora is seen. If it is followed by a N. gale, as Scoresby has noticed, the author remarks that N. gales follow a clear sky. - Other appearances are recorded; and dates given; and cloudy weather is referred to when aurora, though present, could not be visible

On Nov. 2 at 11.30, when belated in a boat and weather-bound at the head of Igalikko Fiord in S. Greenland, the author distinctly observed a very bright auroral light, mingled with the snow-drift, which was whirled from the top of a mountain on the Island by the force of the gale. And on reaching within 300 or 400 yds. of the mountain, which was 1000 ft. high, he distinctly saw the Auroral arc detach itself from the snow-drift and display itself between him and the summit of the mountain, about 200 ft below the latter emitting a very bright yellowish phosphorescent light.

Although the meteor could not have been more than 100 yds. from him he could detect no sound, but the high wind then blowing would have prevented sound, if any, being heard. The Esquimaux crew saw this phenomenon and were fearful; they regarded it as the sign of violent storms from the N.; a prediction which was verified before morning.

From Aug. 13 to Nov. 13., Auroræ were observed on 57 nights; sometimes two or three times on the same night. The author thinks the electrical discharge, which constitutes aurora, to be purely local. But neither he nor any of the residents with whom he conversed, either in Iceland or in Greenland had ever heard any sound, although a belief prevailed that sound was sometimes heard.

The Secretary read Rule 5, referring to Alterations in the Institutes.

The following alterations were approved by the Council and submitted to the members assembled

at the General Meeting.

No 1

Proposed by Dr. Lee
Seconded by Dr. Tripe

That the words "Ten Pounds" be substituted for the words "Twelve pounds" in line 2 and in line 5 of Rule 17.

Carried unanimously

No. 2

Proposed by Revd. A. Beattie
Seconded by W. Beardmore Esq

That the words "the sum of one pound for his admission fee and" be omitted from Rule 16. and the words "exclusive of his admission fee" be omitted from Rule 17.

Carried unanimously.

No. 3

Proposed by C. V. Walker Esq Sec
Seconded by Rev J. Hill.

That after the words "ordinary meetings of the Society" in Rule 8.

line 3, the following words be added "or at a Council meeting, on days when an ordinary meeting is not held." And that the word "next" be substituted for the word "second" in Rule 9, line 1.

Carried unanimously

The Ballot was taken for the Officers and Council for the ensuing year. - Rev. A. Beattie & A. E. Eaton Esq were appointed scrutineers.

The scrutineers reported that the following gentlemen had been elected as Officers & Council.

President.

N. Beardmore, Esq. C. E., F.R.A.S.

Vice-Presidents.

C. Brooke Esq. M.A., F.R.S.
T. Sopwith Esq. M.A., F.R.S.
R. D. Thomson Esq. M.D., F.R.S.
J. W. Tripe Esq. M.D.

Treasurer.

H. Perigal Esq. F.R.A.S.

Secretaries

J. Glaisher Esq. F.R.S., F.R.A.S.
C. V. Walker Esq. F.R.S., F.R.A.S.

Librarian

H. S. Eaton Esq. B.A.

Council

J. H. Barker Esq. M.D.
Rev. H. Beattie. M.A.
Antonio Brady Esq. M. M. S.
F. J. Burge Esq
Rev. S. Clark. M. A.
W. P. Drymond Esq.
Admiral R. Fitzroy. F.R.S., F.R.A.S.
J. P. Harrison Esq. M.A.
Rev. J. Hill. B.D., F. R. A. S.
S. E. Hoskins Esq. M.D., F.R.S.
J. Lee Esq. L.L.D., F.R.S., F. R. A. S.
S. C. Whitbread. Esq. F.R.S., F. R. A. S.

Mr. Sopwith on resigning the office of President made some most useful observations on the spread of Meteorological Knowledge during the last two years; and suggested that School Teachers from their regular habits would be most useful observers. He stated also the results of the labours of Mr Glaisher and himself, in establishing by the aid of the Duke of Northumberland, the Stations for the Coast of Northumberland, and pointed out that a

number of lives have been thereby saved.

He referred also to the weather map, invented by Mr. Joyce: and while approving its principle, he hoped that after a little experience it may receive some minor improvements: and become a most popular and useful invention.

It was proposed by the Rev. A. Beattie, and seconded by Mr. Brooke that the best thanks of the Society be accorded to J. Sopwith Esq on resigning the Presidency of the Society for his indefatigable labours in the cause of the Society, his urbanity, and unwearied exertions, for the last two years.

The vote was put by Mr. Beardmore, and carried with acclamation.

The Secretary then laid before the Society the Treasurers report.

Acct. of Treasurer of Br. Meteorological Society.

			£	s	d				£	s	d
1861						1861					
Jan	1	Balance in hand	136	15	6	April	5	Paid for Postage Stamps	£2	-	4
April	9	Dividends on £ 3% Stock 3 half years	16	1	7	"	"	Asst Secretary Jan, Feby & March	13	-	-

			£	s	d				£	s	d
1861						1861					
June	12	Subscriptions received	54	3	-	June	12	Balance	194	19	9
		£	210	-	1			£	210	-	1

			£	s	d				£	s	d
1861						1861					
June	12	Balance £	194	19	9	June	30	Assist Sec £	13	-	-
			40					£30 Stock	27		
		£	134	19	9			Reports for 2 or 3 years }		?	

Mr Walker then reported what the Society had done during the year. He hoped that hereafter a periodical paper might be prepared on the model of the monthly notice, and circulated among the members. By this means members would become informed of the subjects brought before the Society at the successive meetings; - greater interest would be taken in the Society; and it would become more useful. He also mentioned that he had received application from one of Her Majesty's Equerries for certain information concerning the weather during

particular periods in the West of London and at Windsor, which he had been able to furnish in the name of the Society, and for which he received thanks.

The meeting then adjourned; after a vote of thanks to the Secretaries had been proposed by Mr Beardmore and seconded by Dr Lee, and carried unanimously.

Nath Beardmore

British Meteorological Society.

General Meeting

1861 November 20 : 7 p.m.

R. Beardmore Esq^r. C.E. President in the Chair. The Minutes of the last Meeting were read and confirmed.

The Secretary read a list of the books presented to the Society since the last meeting.

George Farren Esq^r. of Camberwell, Francis Galton Esq^r. F.R.S. of Rutland Gate and A. J. Joyce Esq^r. of 31 Upper Gower Street Bedford Square were ballotted for and duly elected Members of the Society.

J. Sladen Esq^r. R.A. of the Haslar Barracks Gosport was proposed as a member by H. S. Eaton, seconded by A. Brady and J. P. Harrison.

L. P. Casella Esq^r. F.R.A.S., F.R.G.S. of Hatton Garden was proposed as a member by D^r. Lee, seconded by D^r. Tripe, H. S. Eaton, and Charles V. Walker Esq^{rs}.

R. Coultourne Esq^r. Governor ~~of the Island~~ of the Island of Montserrat was proposed as a Member of the Society by D^r. Lee, seconded by J. Glaisher, Antonio Brady, and H. S. Eaton Esq^{rs}.

A paper of which the following is an abstract was then read by J. Glaisher Esqr.
On the Direction &c. of the Wind since 1841.
(Abstract)
The author commenced by saying that he believed up to the present time there had not been any satisfactory discussion on the direction of the wind, nor have any safe results been deduced as to the average duration in the year of the winds from different quarters, and their average distribution over the several months of the year; nor was it known whether the more or less frequency of any or of all winds, followed any particular period or cycle. In his investigations upon the tempera-tures of the last ninety-years he had frequently felt he was investigating an effect the cause of which must in a great measure, have been the quarter from which the wind blew: and in a paper published in the "Philosophical Transactions" in 1850, on the monthly temperature of the preceding 79 years, he had stated that the numbers in the tables which accompanied that article showed that "causes exist at different times which raise or depress the temperature, and which continued through long periods.

The main cause he then thought, was the more or less continuance of cold or warm winds; and with the view of determining, if possible how far these results had been influenced by the wind, he extracted and arranged every observation of the direction of the wind, and its strength for all those seventy-nine years. But although the result was an indication of a connec-tion, it was by no means such as he could announce or use. The data were insufficient, the recorded winds were those which the observer considered the prevailing ones, and were noticed only twice during the day, and the observations separated for the most part from each other by a few hours only. Since the year 1850 the author had become more & more convinced of the necessity of investigating the direction of the wind; but for the results to be of any value, the method adopted must be on a totally different principle from that which has hitherto been in use viz That of using the prevailing direction to the neglect of all others directions. Instead of this partial method it was necessary to give to all due weight, and thus

to properly determine the average direction.
Another cause of the want of knowledge has been the almost utter neglect of night observations. At the Royal Society, for instance, the observations were taken at 9 a.m & 3 p.m, neglecting entirely the remaining eighteen hours, and it is evident the knowledge sought must be based upon night observations as well as those of the day, and, therefore, to be done effectually must be done mechanically by an instrument. The wind in fact must be made to register its own direction and velocity. In the year 1841 Osler's Anemometer was erected at the Royal Observatory, and for twenty years has been under the author's superintendence an interval of time of sufficient length to permit the deductions of some safe results. The first step in the work was to extract from the record sheets the direction of the wind at every hour, the next step to take the mean of all these twenty-four directions and to consider it as the true mean direction of the wind for the day. In this way voluminous but accurate

tables showing the daily direction of the wind from 1841 to 1860 inclusive have been constructed

From these tables were collected all those days in each month when the air had passed from one of the sixteen points of the azimuthal circle and when it had blown at any part of the day with a pressure equal to or greater than a quarter of a pound on the square foot of surface. Days of less pressure than this were classed as calms. ~~From~~ By these means a second series of tables has been elaborated showing the number of days the average direction of the wind was from each of the sixteen points. The next process was the reduction of all these details to the 4 Cardinal points

Some curious theoretical indications seem to be exhibited in these tables which were made more manifest by the facts being displayed in the form of diagrams. the lines of which conveyed their results prominently to the eye.

It was found that the prevailing direction of the wind from 1841 to 1847 was S.W for 3 months

N.W for 1½ month

NE for 1 month in each year.
there being no instance of a prevailing wind from the N.W or E. during any one month in those years.

From 1848 to 1856 the prevailing winds were S.W for 4 or 5 months generally,
In 1857 the S.W wind was prevalent for 6 months
1854 ———————— 7½ months
1855 ———————— 3 months

From the year 1857 the S.W wind has prevailed for 8 months in the year on an average.

These results too were interesting as indicating a marked difference in the direction of the Wind. in the years 1848 to 1856 from those immediately preceding 1848 & following 1856, but still they are deceptive being based upon the prevailing wind to the neglect of all others. For example take January 1841 the prevailing wind is S.W. we find 5 days from the NE by E

3 " " the NE
2 " " the E
1 " " the SE
2 " " the NW
& 1 " Calm in all

14 days neglected, & if we consider each month in the same way there would be 150 days in the year which would not be allowed any weight.

The author therefore opposed all idea of making further use of those observations and took instead the sums of the numbers in every year in each wind referred to the 16 points of the compass, and in this way formed another table showing the number of days of mean direction of the wind in different directions in every year. The mean of these numbers were given in the ~~following~~ tables for every month

These sums showed that the mean direction of

The N	was	40.70
NE		47-60
E		22-55
SE		19-90
S		34.20
SW		104.00
W		38.30
NW		24.10

and 33.7 were of very light winds and Calms

Mr Eaton then read a paper on the Fall of Rain in Devonshire, as deduced from many places, at some of which observations had been taken for many years.

Mr Casella brought under the notice of the meeting a new Minimum mercurial Thermometer and described it

In the discussion which followed, Mr Zambra claimed the Instrument as one of the invention of himself & Mr Negretti

Mr Howson exhibited a barometer of his invention, by which the ordinary scale of inches could be increased to any extent

A Communication from the Rev. Mr Mathews of Lampeter on a Curious Rainbow seen by him

Nathl Beardmore
Jany 15th 1862

British Meteorological Society.

General Meeting
1862 January 15th.

N. Beardmore Esqr. C.E. in the Chair
The Minutes of the last meeting were read and confirmed

The Secretary read a list of the books presented to the Society since the last Meeting.

L. P. Casella F.R.A.S, F.R.G.S. of Hatton Garden was ballotted for and duly elected a Member of the Society.

J. Sladen Esqr. R.A. of the Haslar Barracks Gosport was ballotted for & duly elected a Member of the Society. & R. Coultourne Esqr. Governor of the Island of Montserrat was ballotted for & duly elected a member of the Society.

A paper of which the following is an abstract, was read by J. Glaisher Esqr. F.R.S. "On the pressures of the wind in strong winds & gales at the Royal Observatory Greenwich in the years 1841 to 1860.

(Abstract)

The author in his investigation excluded all light winds, or whenever the pressure on the square foot was less than 5 lbs.

He detailed in each year every successive stormy wind and Gale, beginning with the year 1841 and ending with the year 1860, indicating the limits of pressure of each direction of the wind. He then collected all the cases which had happened in these twenty-years under each direction of the wind and found that there had been

5 cases from the	S	with pressures varying from		7 lbs to 16 lbs
12	————	S.S.W	————	7 lbs to 24 "
85	————	S.W	————	7 to 25 "
11	————	W.S.W	————	7 to 25 "
18	————	W	————	7 lbs to 28 "
6	————	W.N.W	————	7 lbs to 15 "
3	————	N.W	————	7 lbs to 12 lbs
1	————	N.N.W	————	6 lbs
8	————	N	————	7 lbs to 15 lbs
9	————	N.E	————	7 lbs to 21 lbs
3	————	E.N.E	————	7 lbs to 14 lbs
2	————	E	————	7 lbs to 9 lbs
1	————	S.E	————	6 lbs
1	————	S.S.E	————	7 lbs

and within the twenty-years the wind had blown

once from the		W	with a pressure of	28 lbs
"	————	S.W	————	25 lbs
"	————	W.S.W	————	25 lbs
"	————	S.S.W	————	24 lbs
"	————	N.E	————	21 lbs
"	————	S	————	16 lbs
"	————	W.N.W	————	15 lbs

Once from the N with a pressure of 15 lbs
" " " E.N.E ——— 14 lbs
" ——— N.W ——— 12 lbs
" ——— E ——— 9 lbs
" ——— S.S.W ——— 7 lbs
" ——— N.N.W ——— 6 lbs
" ——— S.E ——— 6 lbs

and there were no instances of pressures to 5 lbs, from either of the two remaining points viz N.N.E. and E.S.E.

The author then pointed out that during the twenty-years, or 240 months, that pressures to 5 lbs have been recorded in 160 months or 2 out of 3. He next extracted and arranged in the order of magnitude all pressures of the wind independent of direction in every month in all the years. From these tables it appeared that in January there was no instance of the month passing with less pressure than 5 lbs

That in four years the pressure varied from 6 lbs to 9 lbs.
" " 9 " ——— 10 lbs to 13 lbs.
" " 6 " ——— 15 lbs to 18 lbs
" " 1 " ——— was 25 lbs.

In February there 4 instances of pressures less than 5 lbs
14 " " from 7 lbs to 22 lbs
1 " " of 25 lbs
1 " " of 28 lbs.

In March there were	4 instances	of pressures	less than	5 lbs
	15 "	"	from 6 lbs to 17 lbs	
	1 "	"	of 21 lbs	
In April "	3 "	"	less than	5 lbs
	14 "	"	from 6 lbs to 13 lbs	
	3 "	"	of 15 lbs	
In May "	6 "	"	less than	5 lbs
	13 "	"	from 6 lbs to 16 lbs	
	1 "	"	of 23 lbs	
In June "	11 "	"	less than	5 lbs
	8 "	"	from 7 lbs to 12 lbs	
	1 "	"	of 23 lbs	
In July "	9 "	"	less than	5 lbs
	10 "	"	from 6 lbs to 10 lbs	
	1 "	"	of 15 lbs	
In August "	11 "	"	less than	5 lbs
	8 "	"	from 7 lbs to 11 lbs	
	1 "	"	of 16 lbs	
In September "	10 instances	of pressures	less than	5 lbs
	9 "	"	from 6 lbs to 12 lbs	
	1 "	"	of 13 lbs	
In October "	5 "	"	less than	5 lbs
	14 "	"	from 7 lbs to 15 lbs	
	1 "	"	of 16 lbs	
In November	6 "	"	less than	5 lbs
	13 "	"	from 6 lbs to 20 lbs	
	1 "	"	of 24 lbs	
In December	7 "	"	less than	5 lbs
	12 "	"	from 7 lbs to 16 lbs	
	1 "	of a pressure	of 24 lbs	

January therefore is distinguished as the only month during these twenty-years in which pressures of the wind have always exceeded 5 lbs. The next in order of frequency of strong winds are February, March, & April; then May and the last 3 months of the year, which four months are nearly of equal frequency. The remaining months viz. June, July, August & September are distinguished by being the most free from strong winds, and to nearly the same degree. The author then said that one February and March in five years had been free from strong winds one April in $6\frac{2}{3}$ years had been free from strong winds
one May. Oct, Nov, Dec in $3\frac{1}{3}$ " ——————
one June July. Aug & Sep in 2 " ——————
The author then exhibited a table of the extreme pressure of the wind in every month & remarked that in some years, as in 1841, 1842, 1843, 1846, 1849, 1855 ~~and~~ 1856, & 1857, no pressure had reached 5 lbs for several months together, whilst in other years, as in 1848, & 1853 this pressure had been exceeded in every month but one in both years, and in 1850 in every month without exception. The year 1860 the last of the series was distinguished by the greatest pressure in the 20 years viz 28 lbs in February, and this year was no less remarkable for pressures of 23 lbs in the months of May and June, whilst in these months generally the extreme

pressures were very much less.
Mr. Glaisher then spoke upon the greatest pressure in each year, and pointed out the great difference between them in different years. He said in 1851 the greatest pressure was 11lbs
in the year 1846 the greatest pressure ~~was~~ in the year was 14 lbs
in 1845, 1848 & 1857 ——— in each year was 13 lbs
in 1853 & 1855 ——— 15 lbs
in 1856 & 1858 ——— 16 lbs
in 1844 & 1854 ——— 17 lbs
in 1847 ——— in the year was 18 lbs
in 1859 ——— in the year was 20 lbs
in 1842 ——— " 21 lbs
in 1849 ——— " 22 "
in 1841 & 1852 the greatest pressure in each year " 24 lbs
in 1843 " 1850 ——— " 25 lbs
in 1860 the greatest pressure in the year was 28 lbs
He also remarked that the light pressures with the exception of 1851 were in groups as
in the 5 years, 1844 to 1848 the ~~greatest~~ extreme pressures were from 13lbs to 18lbs
" 6 " 1853 to 1858 ——— 13lbs to 17lbs
whilst in the first three years of the series they were from 21 lbs to 25lbs
in the years 1849 to 1852 (with the exception of 1851) they were from 22lbs to 25lbs
and in the last two years of the series they were 20lbs and 28lbs.
Mr. Negretti exhibited and explained to the Meeting a mountain barometer of new construction
Mr. Harrison read a short paper on the effect of the Moon on the Temperature of the air

Nathl: Beardmore
March 19th 1862

British Meteorological Society

General Meeting

1862 March 19. 7 p.m

N. Beardmore Esqre C.E president in the Chair
The Minutes of the last Meeting were read & confirmed.
The following gentlemen were ballotted for & duly elected Members of the Society.

G. B. Airy Esqre M.A. Astronomer Royal	of Greenwich.
E. B. Bright Esqre	of Liverpool
Sir C. T. Bright F.R.A.S.	of Upper Hyde Park Gardens.
A. Brewin Esqre	of Austin Friars.
J. G. Barclay Esqre	of Lombard St & Leyton Essex
R. Cull Esqre	of Tavistock Street, Bedford Square
L. Clarke Esqre	1 Victoria Street. S.W.
E. Clark Esqre	Observatory, Peckham.
C. O. F. Catar Esqre	Bryanston Square.
R. C. Despard Esqre	Kensington
R. V. Dodwell Esqre	Manchester
R. B. Grantham Esqre	Scotland Yard.
T. Hopkins Esqre	Eastbourne, Sussex
W. H. ~~Harrison~~ Esqre	9 Suffolk St Pall Mall
A. C. Hammond Esqre	St Mary's Lodge Blackheath
E. D. Johnson Esqre	Wilmington Square.
R. Inwards Esqre	48 King William Street E.C.
J. Lake Esqre	Kings Langley.
T. Marris ~~Esqre~~ M.D.	

J. Miller Esqr.	Upwey, Dorchester
J. MacLean Esq.	Great George Street S.W.
D. MacCullum Esq.	Plymouth
Sir J. P. Orde Bart.	Kilmory & North Uist
W. Preece Esqre.	Southampton
T. L. Plant Esqre.	Birmingham.
W. Stewart Esq. M.D.	Diss Norfolk
B. W. Smith Esq.	Hampstead
J. Simms Esqre.	138 Fleet Street
Revd. F. Silver M.A.	Market Drayton Salop.
W. W. Saunders Esq.	Hill Field, Reigate
Revd. R. Tyas	Kingsley Parsonage, Frodsham
N. Whitley Esq. C.E.	Truro.
W. O. Whitehouse	4 Victoria Street, Westminster

A paper was then read "On the Gales in November 1861" by Dr. Moffat of which the following is an Abstract

(Abstract).

Dr. Moffat's remarks on these gales were from observations taken at fourteen stations in England & the Channel Islands — in each degree of latitude from 49° to 55°, and of longitude between 1°E & 30°W

After pointing out the chief features in these gales, the author observed that in their dynamical effects we saw the results of opposing forces, & in ~~their~~ a meteorological ~~elements~~ sense we perceived currents of air differing widely

in their Meteorological elements, & he proceeded to discuss the storm on the East coast on the 2nd of November taking it as the type of all the others. Preliminary to this discussion he observed that the series of Meteorological processes which led to these gales commenced on the 26th of October, & discussed the barometrical, thermal, electrical & ozonometrical conditions of the atmosphere from that date to the 2nd of November; which conditions with the changes in the direction of the wind he observed pointed to a coming struggle between the north or Polar & the South or equatorial currents of the air & the developement of a revolving storm or cyclone, this storm occurred where as he thinks it might have been expected viz between the latitudes of 54° & 55° as between these degrees the changes from one current to the other took place most frequently. The author next referred to the chief features of the storm, pointed out the circular motion of the air, the oscillations of the barometer, the changes in temperature & the quantities of ozone. and applied them with other elements to show that the polar current had become equatorial in direction and vice versa. Taking a general view of the observations and deducing and comparing results Dr. Moffat arrived at the conclusion that the vortex of the cyclone was in the German Ocean off the coast of Scarborough an opinion in which he is borne

out by the reports of Masters of Ships returning from the Baltic. He concludes his paper with some remarks on the prevalence of diseases of the nervous & muscular systems in connexion with such gales & with hail and snow storms. He gives the results of ten years observations, and concludes by stating that as the animal economy is more susceptible of the electrical changes which accompanying these storms than the most delicate electrometer & that it is not one electrical condition but the change from one to the other that seems to affect it, he is of opinion that a force is formed a modification of the two hitherto undiscovered — analogues to the nervous & muscular forces.

A paper was then read "On the best method of determining mean values from individual observations" by John Bloxam Esq. The author said that to determine with as much accuracy as possible the normal values for Meteorological elements for different portions of the year, and from as few years as possible is necessary. An approximation is obtained by simply ascertaining the mean values belonging to a long series of years for each period; but the longest series available for the purpose will not give such regularly increasing & decreasing values as is most likely to be the truth; and some method of reduction is therefore required to affect an approximation to this object with a small number of years.

The author then stated that his method is founded on the principle that the mean of nine or eleven consecutive days gives more accurately the normal value for the central day of the nine or eleven as the case may be, than the identical value which may happen to fall on that day; and so the value of each day is the mean value of a given number of days on each side of itself, the number of days adopted for the means is ten, and the whole series of 365 days are thus made up of decadal means; the first mean value representing the decade 1 to 10; the second 2 to 11 and so on: the date for the first mean value is then 5½, that for the second 6½, and so on; this process having been carried on throughout the year, the new series of mean decadal daily values thus obtained is in turn treated in the same way, & now the dates become whole numbers again; and this process is continued until the ~~whole~~ resulting values constitute regularly increasing and decreasing quantities

Mr. Bloxam also read a paper on the comparison of the daily readings of the Barometer, at Greenwich and Newport, determined by the method of repeated decadal means at both places, and pointed out the times of agreement and disagreement of the resulting values.

Robt. Beardmore
18/6/62

British Meteorological Society.

Annual General Meeting
1862 June 18 at 7 p.m.

N. Beardmore Esq.re C.E. F.R.A.S. president in the Chair

The Minutes of the last Meeting were read and confirmed.

The following Gentlemen were ballotted for and duly elected Members of the Society

Dr Butter	Pembury Villa Upper Norwood
B. Botefield Esq.re	5 Grosvenor Square
G. R. Burnell Esq.re	14 Lincolns Inn Fields
F. Barclay Esq.re	Walthamstow Essex
G. J. Bosanquet Esq.re	Broxbourne Herts
J. W. Bosanquet Esq.re	73 Lombard Street E.C.
J. Curtis Esq.re	Sale Hall Manchester
S. Canning Esq.re	Abbey Wood, Kent
J. Cooke Esq.re	Weymouth
Revd J. Cross	Appleby Vicarage
R. S. Cully Esq.re	Exchange Bristol
W. Dollond Esq.re	St Paul's Churchyard.
G. C. Dobson Esq.re	Holyhead Harbour.
J. S. Fourdrinier Esq.re	Telegraph Street London.
H. Foster Esq.re	16 Montague Street
J. Gibbs Esq.re	Westminster
N. Holmes Esq.re	33 Park Road Haverstock Hill
J. Heywood Esq.re	26 Kensington Palace Gardens

J. Loyd Esq.re	Hoddesdon Herts.
J. Mackereth Esq.re	Eccles near Manchester
Admiral Manners F.R.A.S.	Henrietta Street Cavendish Square
J. Renter Esq.re	19 Finsbury Square.
J. H. Sanger Esq.re	23 College Green Dublin
J. L. Shuter Esq.re	33 Farringdon Street
B. Stewart Esq.re	Kew Observatory Richmond
R. H. Twigg Esq.re	Kings Langley Herts
H. H. Treby Esq.re	Goodamoor Plympton St Mary Devon
Prof Thomson L.L.D	Glasgow.
Sir H. Verney Bart	Claydon Buckinghamshire
C. G. Watson Esq.re	36 Cowgate Peterborough
W. G. Whatman Esq.re	Ashlands Dorking
Lieut A Young R.N.R.	Twickenham.

A paper was then read "On the Medical Meteorology of the Metropolis for the years 1859, 1860 & 1861 by Dr Tripe of which the following is an Abstract

(Abstract)

This paper is a continuation of others by Dr. Tripe on the same subject. He stated that although the highest and lowest temperatures at Greenwich differ considerably from those of the centre of London yet that the mean for each week corresponds so closely as not to require any correction. That by a comparison of the number of deaths with the mean temperature of the preceding week and classifying them under 9 groups of temperature commencing with those below 35°

then of 35° – 40°, & so on to 70° & 75°, he ascertained that the largest rate of deaths from "all causes" occurred during the coldest and hottest weeks whilst by far the smallest happened during the group of 55° – 60° The largest mean weekly rate of deaths was 1633, & the lowest 1028. The death rate from diseases of the respiratory organs varies far more than from "all causes" and corresponds very closely with the mean temperature. Thus the mean of the nine ~~months~~ weeks which was below 35° was as large as 482. the mean for the 16 weeks of 35° 40° was 332, whilst that of the five weeks of 65°–70° was only 85. There were 33354 deaths from these affections out of 187.012 from "all causes" During the years 1840–56 after allowing for increase of population the mean rate of death from Fever was about 2600 per annum whilst from 1857–61 it was only 1637. The death rate from Fever varies comparatively little at different temperatures. The greatest weekly mean was 46 temperature being 70° – 75° & the lowest 28 temperature below 35°. The mortality from diarrhœa varies between 4 in one week & 415 in another. The lowest weekly mean (below 35°) was 15, and the highest (70° to 75°) was 415. The death rate from diarrhœa was very small when the temperature was below 50°, & rapidly increased as the temperature became higher.

A Paper was then read by Dr Moffat "On the

Luminosity of Phosphorus in connexion with Atmospheric Conditions; & on the Magnetic Condition of Phosphorous Vapour.

A communication was then read from A. S. Herschel Esqre. "On the Midland Aurora of February 21st."

A Paper was read by H. S. Eaton Esqre. M.A. "On the Results of Barometrical Observations at Exeter"

Proofs of certain Maps were exhibited by Fr. Galton Esqre. showing the state of the Weather over "Europe three times a day during the Month of December 1861.

At the close of the Ordinary Meeting the Annual General Meeting was held and the Report of the Council on the State of the Society during the past year was then read and adopted

A ballot was then taken and the following list prepared by the retiring Council was received & adopted as Council and Officers for the Session 1862 – 63.

President

N. Beardmore Esqre. C.E. F.R.A.S. &c &c

Vice President
C. Brooke Esq^re. M.A.; M.B., F.R.S.
J. Lee Esq^re. L.L.D., F.R.S., F.R.A.S., F.G.S. &c &c &c
T. Sopwith Esq^re. M.A., F.R.S., F.G.S.,
R. D. Thomson Esq^re. M.D., F.R.S. L.& E.

Treasurer
H. Perigal Esq^re. F.R.A.S.

Secretaries
J. Glaisher Esq^re. F.R.S., F.R.A.S., &c
C. V. Walker Esq^re. F.R.S., F.R.A.S.

Librarian
H. S. Eaton Esq^re. M.A.

Council
Rev^d. A. Beattie M.A.
A. Brady Esq^re. M.M.S.
W. C. Burder Esq^re. F.R.A.S.
Rev^d. S. Clark
W. P. Dymond Esq^re.
F. Galton Esq^re. F.R.S.
J. P. Harrison Esq^re.
H. Johnson Esq^re.
S. W. Silver Esq^re.
D. Slate Esq^re.
J. W. Tripe Esq^re. M.D.
S. C. Whitbread Esq^re. F.R.S.

It was then proposed by T. Sopwith Esq^re. M.A. F.R.S., and seconded by C. Brooke Esq^re. M.A., F.R.S.,

That the cordial thanks of the British Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their meetings in the Rooms of the Institution during the Session which has just ended,

which was carried unanimously.

The following Resolution was proposed by G. J. Symons Esq^re, seconded by T. W. Burr Esq^re F.R.A.S.

That the thanks of the Society be given to the Officers for their services during the Session that has now closed,

which was carried unanimously.

Nath Beardmore
Nov 19th 1862

British Meteorological Society

1862 November 19.

N. Beardmore Esqre C. E; F R. A. S. president in the Chair

The Minutes of the last Meeting were read and confirmed.

The following gentlemen were ballotted for and duly elected Members of the Society.

C. C. Adley Esqre.	Harcourt Street: Dublin.
H. Coxwell Esqre	Tottenham
R. Cramp Esqre.	Ramsgate.
H. Crofton Esqre.	of Ashford County Wicklow.
R. Hodgson Esqre.	
W. T. Ingelow Esqre.	Kensington
J. Lees Esqre	Reigate
T. M. MacKay Esqre.	Hyde Park.
Revd. C. Maxwell	Leckpatrick Strabane
G. K. Olivier Esqre	Arundel
Capt Preedy R.N.	Plymouth
T. Proud Esqre	Wolverhampton
Serjeant Sylvester A. M. C.	Chatham
J. Thurstans Esqre	Wolverhampton
C. Tomlinson Esqre.	Bedford Place W.
Major Ward	Calne.
A. W. Wills Esqre.	Wolverhampton

A paper was then read
"On the recent balloon ascents for
Scientific purposes by J. Glaisher Esqre

Nath. Beardmore
Jan. 21st 1863

British Meteorological Society

1863 January 21st

General Meeting

N. Beardmore Esqre C.E. F.R.A.S. President in the Chair.

The following gentlemen were balloted for and duly elected Members.

I. L. Bell Esqre	Washington, Durham
C. Biggs Esqre	Norwood.
J. Colthurst Esqre	Cork
S. M. Drach Esqre F.R.A.S.	Fitzroy Square
W. H. Ford Esqre	Wolverhampton
R. Holland Esqre	Great Stanmore
J. Lea Esqre	Belgrave Square
A. J. Melhuish Esqre	Haymarket
J. R. Croskey Esqre	
G. H. Simmonds Esqre	Board of Trade
J. Smyth Esqre	Banbridge Ireland
E. Vivian Esqre	Torquay
W. S. Ward	Leeds.

A Paper was then read by H. S. Eaton Esqre "On the pressure of the Atmosphere in London from

observations taken during the preceding 83 years. of which the following is an "abstract"

The author in this paper stated that the data on which he based his results were the Meteorological Journal kept at the Apartments of the Royal Society since 1774, and the Greenwich Observations from 1840 to 1862. After corrections had been applied for numerous errors in the former journal, and for instrumental error the observations were reduced to 32° Fah^t. and sea level. Tables were then formed shewing the Monthly Average together with the difference from the Annual Average

Letters were also read from The Hon S. Cockburn On the Climate of Belize British Honduras in the Months of September & October 1862.

R D Thomson

British Meteorological Society

1863 March 18.

General Meeting

Dr. R. D. Thomson F.R.S. in the Chair.

The following gentlemen were ballotted for and duly elected members of the Society.

Revd. J. C. Bates M.A.	Castleton Moor near Manchester
H. Billson Esqre.	Hotel Street Leicester
R. W. Hewlett Esqre. M.B.	Maddox Street, Regent's Street
T. Hewlett Esqre. F.R.C.S.	Harrow on the Hill
S. U. Jones Esqre.	Leamington
A. Pope Esqre.	81 Edgware Road N.
T. Pratt Esqre.	228 Hackney
T. Read Esqre.	66 Torrington Square W.C.
W. H. Yeates Esqre.	Whitehall Yard S.W.

A paper was then read on the Winter which occurs in the Spring and the Summer which occurs in the Fall of the Year by J. C. Bloxam Esqre.

This paper is printed in the Proceedings No. 7.

Mr. Eaton considered 16 years a period not sufficiently long to determine mean temperature and proved that 50 years of observations is insufficient by the theory of probabilities

Mr. Harrison is of opinion that the Blackthorn varies in its period of flowering to a very great extent and that thus is not very nearly allied with the temperature of the air.

The amount of vapour in the air determines our impression as to heat and cold much more than the actual temperature; Dry Air being cold~~er~~ to our senses. Vapour serves to prevent heat from being radiated from the Earth.

Mr. Harrison Gave a résumé of his "Lunar Theory" and proved that the "Three cold days" after the 10th of May are due to a predominance of full Moons which have occurred during the last 60 or 70 years in which thermometrical observations have been made.

Mr. Drach spoke of the Indian Summer in New York and the Fly Summer in Germany and that Photographers considered April the best month for pursuing their avocations.

Dr. Tripe considers Mr. Bloxam's paper inconsequent and spoke of humidity affecting our feelings in this way. When the air is moist and cold; exercise cools us, but when dry and cold exercise warms us.

Notice of a hurricane at Seychelles on 1862 Oct 11 and Oct 12 by R.P. Brunton

There was heavy rain but no thunder and lightning. The direction of the wind was at first S.E lastly N.W.

The Hon. S. Cockburn contributed a paper on the Climate of Belize British Honduras for the months of December 1862 and January 1863.

A letter was read from Mr. Blake on the Connection of Cirri with the Aurora Borealis observed by him on December 14th 1862. The same phenomenon was also witnessed by Mr. Harrison, Mr. Symons and Mr. Eaton.

Mr. Negretti exhibited an alcoholic minimum thermometer which may be suspended vertically also a self registering maximum and minimum thermometer by Mons. Baudin.

Nath Beardmore
June 17th 1863

British Meteorological Society

Annual General Meeting

1863 June 17 7 p.m.

N. Beardmore Esq.re C.E. F.R.A.S. President in the Chair.
The minutes of last meeting were read and confirmed.
The following Gentlemen were ballotted for and duly elected members of the Society.

T. Du Boulay Esq.r	West Lawn, Sandgate Kent.
C. Cathcart Esq.r	Auchendrane Ayr N.B.
A. J. Cuming Esq.r	95 St Georges Road S.W.
J. Freeland Esq.r	S.E.R. Offices 6 St Thomas's St
W. Hering Esq.r	3 Gloucester St Portman Square
J.H. Mackenzie Esq.r	Wallington Surrey
G.G.F. Pigott. Esq.r	Abington Pigotts. Cambridgeshire
W. Sowerby Esq.r	Royal Botanic Garden Regent Pk
C. Stenning Esq.r	3 Basinghall Street E.C.
Lt. Col. Strange	18 Walton Place Hans Place S.W.

Sir C. Bright C.E. &c. — 12 Upper Hyde Park Gardens W

&

C. Greaves Esq. C.E. — Old Ford Bow.

were elected auditors

A paper was then read "On the Theory of Vapour-pressure" by John, Charlton Bloxam Esqre.
This paper is printed in the proceedings No 8.

A Note was then read upon the same subject by G B Airy Esqr FRS. Astronomer Royal
This paper is printed in the proceedings No 8.

A paper was then read "On the Hurricane of May 1862 at Highfield House and Newark" by E. J. Lowe Esqr. FRAS. &c.
This paper is also printed in proceedings No. 8.

Another paper was then read by E J Lowe Esqr "On the Aurora Borealis seen on March 21st 1863 at the Beeston Observatory"
This paper is printed in proceedings No 8.

Notes on the climate of Belize, British Honduras. 1863. February, March, April by Hon. Ue S. Cockburn.
This paper is printed in proceedings No 8.

A paper "On the Antagonism of the Polar and Equatorial Air-currents exemplified illustratively by the unseasonable Storms, in Western Europe of the 18th & 19th of May 1863" by Colonel Austen, Communicated by H. S. Eaton Esqre Librarian

This paper is printed in proceedings No 8.

A paper was then read "On Cirri clouds and Aurorae by F. Pratt Esqre.

This paper is printed in Abstract in the proceedings No 8.

C. V. Walker Esqr FRS. Secretary then read a paper "On the behaviour of a new Pocket-Aneroid".

At the close of the Ordinary Meeting the Annual General meeting was held and the Report of the Council on the state of the Society during the past year was then read and adopted

The treasurer's account was then laid on the table and there was found to be a balance of £47 " 8 " 3.

It was Moved by Mr. Brayley
and seconded " Sir Chas Bright
that this Report be read, adopted, ~~and~~
printed, and circulated in the usual manner.

The following seven Resolutions
were in succession passed viz;

No. 1

Proposed by Mr. Walker and
Seconded " Mr. Brayley

Rule 11 in Institutes; — That the
words, "agreeably to form No. 4, in the
Appendix hereto," be added after the word
"letter" in Rule 11; and that the following
form of letter; which has been
provisionally used, and approved
by the Council at the Meeting held
on 1863, Jan 21, be printed as "Form
No. 4" in the Appendix to the Institutes.

Form No. 4

British Meteorological Society

186 ——

Sir, — I have the honour to inform
you that you have ~~been~~ this day
been elected a Member of the British
Meteorological Society. I forward you
herewith a copy of the "Institutes of
the Society", and a card announcing
the days on which the Ordinary
Meetings are held.

The Treasurer will advise me that you have complied with the provisions contained in Rule 12, when I shall have the pleasure of forwarding to you the Publications of the Society for the current year.

I have the honour to be,
Sir,
Your obedient Servant,
Secretary

To ________________ .

No. 2.

Proposed by Mr. F. Galton.
Seconded by Mr. Casella.

Rule 16.— That the following words be added to Rule 16, at the end:—"unless he be elected after the summer recess."

No. 3

Proposed by Mr. Eaton
Seconded by Mr. Casella

Rule 24.— That the words, "No. 5 in the Appendix hereto" be substituted, in Rule 24, for the words "prescribed by the Council;" and that the following Form of Diploma, which was used at the last election of Honorary Members, and approved by the Council at the meeting held

1862, June 18, be printed as Form No. 5 in the Appendix to the Institutes.

Form No. 5

British Meteorological Society

186__, ______.

We have the honour to inform you that at the Ordinary Meeting of the British Meteorological Society held at

, on

186 , at p.m., you were elected an Honorary Member of this Society, in recognition of the eminent services you have rendered to Meteorological Science.

Witness our hands, this

day of 186 .

______, President

______ }
______ } Secretaries

No. 4

Proposed by Mr. Walker,
Seconded by Mr. G. J. Symons.

Rule 34.— That the following be the wording of Rule 34:— "At least Six Ordinary Meetings of the Society shall be held in each session; the Meetings to be held in the months of January, February, March, April,

June, and November; the Meetings to be held on the third Wednesday in each month, or on such other day as shall from time to time be advised by the Council. And the Council shall have power to call additional Ordinary Meetings at their discretion, or of increasing the number of Ordinary Meetings in the session".

No. 5

Proposed by Mr. J. Harrison,
Seconded by Mr. Pratt.

Rule 35. — That the following words be added to Rule 35, after the word "precisely" — "or at such other hours that shall be determined by the Council."

No. 6

Proposed by Mr. Walker,
Seconded by Rev J B Reade,

Rule 39. — That the words "on the fourth tuesday in May", at 4 o'clock in the afternoon", be struck out of Rule 39, and the following words substituted, "immediately after the Ordinary Meeting of the Society in the month of June, or on such other day and hour in the month of June as shall from time to time be determined

by the Council."

No. 6

Proposed by Mr Walker
Seconded by Rev J. B. Reade
Rule 39 — That the words "on the fourth Tuesday in May, at 4 o'clock in the afternoon," be struck out of Rule 39, and the following words be substituted, "immediately after the Ordinary Meeting of the Society in the month of June, or on such other day and hour in the month of June as shall from time to time be determined by the Council".

No. 7

Proposed by Mr Glaisher,
Seconded by Mr Brayley.
Rule 41. — That the following be the wording of Rule 41:— "The ballot shall commence after the Annual Report has been read; and shall be kept open during such a time as shall be determined by the Scrutineers.

A ballot was then taken, and the following list of Members, prepared and proposed by the retiring Council, was received and adopted as Officers and

Council for the Session 1863–64.

President

Robert Dundas Thomson Esq M.D

Vice Presidents.

Antonio Brady Esq., M.M.S

J Lee Esq LLD &c &c

S. W. Silver, Esq F.R.G.S.

J. W. Tripe Esq., M.D.

Treasurer

Henry Perigal, Esq., F.R.A.S.

Secretaries

J. Glaisher Esq F.R.S.

C. V. Walker, Esq., F.R.S.

Foreign Secretary

F. Galton, Esq., M.A

Librarian

H. S. Eaton Esq M.A

Council

N. Beardmore Esq C.E.

C. Brooke Esq M.A

W. C. Burder Esq F.R.A.S.

W. P. Drymond Esq.

J. P. Harrison, Esq., M.A.

H. Johnson Esq.

R. W. Mylne, Esq., C.E.

D. Slate Esq.

T. Sopwith Esq., M.A.

Balfour Stewart, Esq M.A

G. J. Symons, Esq.

S. C. Whitbread Esq F.R.S.

The following resolutions were made;
Proposed by Mr. Glaisher,
Seconded by Dr. Lee.
That the cordial thanks of the British Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having granted free permission to hold their Meetings in the rooms of the Institution during the Session that has just ended.
Proposed by Mr. Brayley
Seconded by Mr. Harren.
That the thanks of the Society be given to the Officers for their active services during the Session that has now closed.
Proposed by Mr. Walker
Seconded by Sir Chas Bright
That the Members of this Society desire to express their cordial thanks to N. Beardmore, Esq., for the able manner in which he has filled the Presidential Chair, and for his uniform courtsey and kindness; and to assure him that on his retirement he carries with him the esteem and respect of all who have had the pleasure

of meeting him as our President.

On retiring from the Chair, Mr Beardmore congratulated the Society on the progress made during the two years he had occupied the Presidence.

R D Thomson

British Meteorological Society.

Meeting

1863 November 18th / 7 p.m

Dr Thomson President, in the chair

The minutes of last meeting were read and confirmed

The following Gentlemen were ballotted for and duly elected members of the Society.

Lieut Col. H. Austen.	Rockville Tenby S. Wales.
Henry Deane Esqre	Clapham. Surrey S.
Henry Deane Junr Esqr	Galway Ireland
Samuel Doncaster Jun Esqre	Doncaster Street Sheffield
W. C. B. Eatwell. Esqr MD.	Bengal Army. Oriental Club
Charles D. Turton Esqre	Lagos W. Coast of Africa

A paper was then read "On the Gales of October 30th 1863. By James Glaisher Esqre F.R.S. Secretary.

Another paper was read "On the method of Determining the Path of a Meteor. By Alexander S Herschel Esqre. Communicated by James Glaisher Esqre F.R.S. Secretary. followed by observations on the August meteors

Translation by H. S. Eaton of a letter by I. I. Bianconi of Bologna, on luminous Meteors

A short communication by G. P. Harrison pointing out numerous errors in a table of M. Le Verrier introduced into the last annual Report of the Society

R D Thomson

British Meteorological Society.

General Meeting.

Jan 20th 1864.

Dr Thomson President in the Chair.

The Minutes of the last meeting were read and confirmed.

The following gentlemen were ballotted for and duly elected members of the Society.

C. F. De Krerzkowitki
E. H. Hudson

A paper was then read "on ~~the~~ Vapour Pressure and Vapour Action by J C Bloxam Esq

Another Paper was then read "On the Storms of Dec 2 and 3. by Jas Glaisher Esq FRS Secretary.

Balfour Stewart Esq M A, FRS then read a paper "on the velocity of Progation between Oxford and Kew

of Atmospheric Disturbances.

Then a paper on Earthquake Theory by Chas Griffin Esq was read by C V Walker Esq F R S Secretary.

Another paper was then read "On History of the Earthquake of 1863 Oct 6. by E J Lowe Esq F R A S F G S.

A vote of thanks was then given to Mr Lowe on the motion of Mr Glaisher seconded by Mr Brady for his interesting paper on the Earthquake of 1863 October 6.

R D Thomson

British Meteorological Society

General Meeting

February 17th 1864

Dr. Thomson in the Chair

The minutes of last meeting were read and confirmed.

The following Gentlemen were ballotted for and duly elected members of the Society.

Thomas Challis Esqre	Wilton House, Salisbury, Wilts
Wm. Blundell Esqre M.R.C.S.	41 Sloane Sqre, Chelsea
Wm. Rankin Esqre M.D.	Otter House, Argyleshire N.B.
Sir. Danl. Cooper Bart.	20 Prince's Gardens, Hyde Park W.
Dr. F. Churchill Junr.	15 St. Stephen's Green, Dublin
Fredk. Gaster Esqre	Meteorological Depart. Board of Trade
John. W. Eccles Esqre	8 King's Bench Walk, Temple, E.C.
Malcolm, McNeal, Walker Esqre	38 Clyde Place, Glasgow
Clarence C. Trotter. Esqre	1. Somerset Terrace, Carlton Road. Maida Vale

The list of books presented to the Society since the last meeting were read

It having been stated that Sir. C. Bright one of the Auditors was out of the Country, it was moved by C.V. Walker Esq & seconded by Mr Eaton that Mr Drach and Mr Biggs be elected Auditors, and on this motion they were both nominated Auditors

A communication by Mr Casella of Observations on Ozone made by , was read.

A paper by E. J. Lowe Esq., on hail and on its similarity in some of its shapes to the forms of Snow Crystals.

A paper was read by Mr Eaton the Librarian, on the Storm of Oct. 29, – 30 1863, the paper was illustrated by Diagrams shewing the progressive stages of the Storm.

A paper on Sound in the upper regions of the air by Alexander Herschel

R D Thomson

British Meteorological Society.

Ordinary Meeting.

March 16. 1864.

Dr. Thomson FRS. President in the Chair.
The Minutes of the last Meeting were read & confirmed.

A list of books presented to the Society since the last Meeting was read.

The following gentlemen were ballotted for & duly elected Members of the Society:-
Alex. Beattie Esq J. P. Kent & Sussex. Warrior Square, St. Leonards-on-Sea.
Louis J. Cropley Esq. Dean Clough Halifax Yorkshire.-

The names of six candidates for admission into the Society were read.-

The following gentlemen, who had been duly elected Members, subscribed the form No. 2, and having paid their first Annual Contribution, were admitted into the Society:-

W^m^ Blundell Esq. M.R.C.S. – Elected 1864. Feb. 17.
L^t^ Colonel Strange. F.R.A.S. " 1863. June. 17.
Clarence E. Trotter. Esq. " 1864. Feb. 17.

The following communications were made to the Society.

LVIII. – Movement of the Air, as recorded by the "Atmospheric Recorder" at the Beeston Observatory, from Jan. 31^st^ 1863 to Jan. 31^st^ 1864. By E. J. Lowe Esq. F.R.A.S.

LIX. – Computation of the Dew-point from the readings of Wet & Dry Thermometers. – By J. Charlton Bloxam Esq.

LX. – Monthly Meteorological Table of Observations, taken at Lagos Africa, for the Half-year ending Dec. 31^st^ 1863. By Charles. D. Turton Esq.

LXI. – Storm Dec. 2–3, 1863. By Lt. Col. Austen.

LXII. – M^r^ Adie exhibited & described an Anemometer on the Kew model, of moderate dimensions & moderate price. –

R D Thomson

British Meteorological Society.

Ordinary Meeting.

April 20th 1864.

Dr. Thomson F.R.S. President in the Chair.

The Minutes of the last meeting were read and confirmed.

A list of books presented to the Society since the last meeting was read.

The following gentlemen were ballotted for & duly elected members of the Society.

Charles Coppock Esq, 31 Cornhill E.C.
George Dines Esq, 31 C
Henry Dodgson Esq, M.D. Cockermouth Cumberland
Samuel Gurney Esq, M.P. 25 Princes Gate Hyde Park S.W. & Carshalton Surrey.
Walter E. Pain Esq, Cambridge.
Augustus Smith Esq M.P. 1 Eaton Place.

The names of Seven candidates for admission into the Society were read.

The following gentlemen, who had been duly elected Members, subscribed the Form No. 2, and were admitted into the Society:—

	Elected.
John W. Eccles Esq	1864 February 17th
F. Gasten Esq	1864 February 17th
Rev. F. Silver	1862 March 19th
Chas. D. Turton, Esq (by proxy)	1863 November 18th

The following papers were read.

The Meteorology of England for the years 1855 to 1862 by James Glaisher Esq. FRS Secretary.

"Forecasts of the coming Summer" by Lieut-Col Austen—

Forecasts of the coming Season by. T. De Boulay Esq.

Rainfall at Cirencester for the years 1845 to 1863 by T. C. Brown Esq.

Description of a new Mercurial Barometer and a New Maximum Thermometer by Mr. Hicks.

John W. Lipe

British Meteorological Society.

Annual General Meeting

June 15th 1864.

Dr. Tripe. Vice-President in the Chair.

The minutes of the last meeting were read and confirmed.

The following gentlemen were ballotted for and duly elected members of the Society.

William Andrews Esq	237 Old Broad Street.
Charles Barham Esq M.D	Truro, Cornwall
W. H. Barnes Esq B.A. F.L.S.	Gangaroowa Nr. Kandy Ceylon
T. W. Beaumont Esq C.E.	Doftanetsie Wallachia
Edward Betts Esq	Preston Hall Nr. Maidstone
The Hon Edward P. Bouverie Esq M.P.	Coleshill House Highworth
James Clench Esq	Warwick Street Leamington
Francis Coston Esq.	Woodlands Red Hill Surrey
J. P. Gapiot Esq F.R.S.	70 Mark Lane & Clapham Com.
Sergt. Major R. Gould	Army Hospital Corps Fort Pitt Chatham
W. J. Kingsbury Esq C.E.	Blandford Square Regents Pk.
J. B. Lawes Esq.	Rothamsted St Albans Herts
John. J. Livesay Esq.	Portsmouth & Ventnor Isle of Wight
W. A. Mackinnon Esq M.P. F.R.S.	4 Hyde Park Place W.

William Carpenter Nash Esq 63 Ashburnham Grove Greenwich SE
Charles Neale Esq CE. 44 Harley St. London
John Noble Esq 50 Westbourne Terrace Hyde Pk
William Parkes Esq CE. Grove Road Surbiton SW
Thos. Pollock Esq. 129 Fenchurch Street
Rev. T. A. Preston MA. Marlborough College Wilts
W. T. Radford Esq. MB. Athenaeum Club Pall Mall
Samuel Smiles Esq. Blackheath SE
John Pike Stephens Esq Bridport Dorset.

The following gentleman, who had been duly elected a member, subscribed the form No. 2, and was admitted into the Society:—

Alexander Beattie Esq .... Elected 1864. March 16.

The following papers were read on,—

Explanation of Meteorological Tables illustrating the Climate of East Tropical Africa. By Jno Kirk Esq MD (of Dr. Livingstone's Zambesi Expedition.

Ozone Observations at Helsingfors Finland. By M E. Juhn

Photographic reproduction of Magnetic tracings at Kew & Lisbon. By. Balfour Stewart Esq FRS.

At the close of the Ordinary meeting the Annual General Meeting was held and the Report of the Council on the State of the Society

during the past year was then read and adopted.

The Treasurer's account was then laid on the table and there was found to be a balance of £47. 15. 4.

The following resolutions were then carried unanimously:-

Proposed by Alex Beattie Esq., J.P.,
Seconded by S. M. Drach Esq., F.R.A.S.
That the Report, which has just been read, be received and adopted; and that it be printed and circulated among the Members of the Society.

Proposed by C. V. Walker Esq F.R.S. F.R.A.S
Seconded by A. Brewin Esq.
That this Meeting is of opinion that to be Incorporated by Royal Charter would advance the interests and increase the usefulness of this Society.

Proposed by Augustus Smith Esq M.P.
Seconded by W. Hering Esq M.D.
That the Council be requested to take steps necessary for obtaining a Royal Charter of Incorporation.

Proposed by James Glaisher Esq F.R.S. F.R.A.S.
Seconded by Charles Brooke Esq M.A., F.R.S.
That, in the event of a Charter being granted

by the Crown, the Society be Incorporated under the style and title of "The Meteorological Society," and that the Members use the distinctive letters "F M S."

Proposed by A Brady Esq FRGS.
Seconded by A Smith Esq., MP.
That a private subscription be opened for meeting the expense connected with procuring a Charter; and that the Secretaries issue circulars for that purpose.

Proposed by H S Eaton Esq MA.
Seconded by Jas Glaisher Esq FRS. FRctS.
That the cordial thanks of the British Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their Meetings in the rooms of the Institution during the Session that has just ended.

The President appointed W F Ingelow Esq and A. Brewin Esq., as Scrutineers; and a ballot was then taken, and the following list of Members, prepared and proposed by the retiring council, was received and adopted as council and officers for the sixteenth Session, 1864–65: –

President.

Robert Dundas Thomson Esq. M.D. F.R.S. L & E.

Vice Presidents.

Antonio Brady. Esq. F.G.S.

S. W. Silver Esq. F.R.G.S.

J. W. Tripe Esq. M.D.

S. C. Whitbread Esq. F.R.S., F.R.A.S.

Treasurer.

Henry Perigal Esq. F.R.A.S.

Secretaries.

J. Glaisher Esq. F.R.S. F.R.A.S.

C. V. Walker Esq. F.R.S. F.R.A.S.

Foreign Secretary.

Lieut-Col. Alex Strange, F.R.S. F.R.A.S.

Librarian.

H. S. Eaton Esq. M.A.

Council.

N. Beardmore Esq., C.E. F.R.A.S. &c &c.

C. Brooke Esq. M.A. F.R.S.

√ Latimer Clark Esq. C.E.

W. P. Dymond Esq.

F. Galton Esq. M.A. F.R.S. F.R.G.S.

J. P. Harrison Esq. M.A.

J. Lee Esq. L.L.D. F.R.S. &c &c &c &c

R. W. Mylne Esq. C.E. F.R.S. F.R.G.S. F.S.A.

D. Slate Esq.

T. Sopwith Esq.

√ Balfour Stewart Esq. M.A. F.R.S.

G. J. Symonds Esq.

Sam^l. Cha^s. Whitbread

British Meteorological Society

Ordinary Meeting

November. 16th. 1864.

S. C. Whitbread Esq. ~~[illegible]~~ - President in the Chair.

The Minutes of the last meeting were read and confirmed

The following gentlemen were ballotted for and duly elected members of the Society:—

Thos. Letts Esq	Black Gang, Isle of Wight.
D. A. Freeman Esq	1 Pump Court. Temple.
Colonel W. Myers	HP. Royal Staff Corps, Halifax Nova Scotia.
Capt F J Bolton	12th Regt. Berkeley Chambers. Bruton St W.
James Hicks Esq	Hatton Garden.
Thos E. Wyatt Esq	Spring Grove W.
Capt Henry Farmer	Robin Hood Rifles. Flora Cottage Lenton. W. Nottingham.
W. M. Burke Esq MD.	31 Molesworth St. Dublin.
A. Henriques Esq.	67. Upper Berkley Street. W

The list of books presented to the Society since last meeting was read.

The following papers were then read:—

"On the Relation of the Atmospheric Air to the Aqueous Vapour existing in it" By Professor Lamont. Translated by W. T. Lynn Esq. B.A. F.R.A.S. of the Royal Obsery. Greenwich from the original.

"On the Aurora Australis of June 8th. 1864" by F. Abbott Esq, of Hobart Town and a "Register of an observation on a Luminous Meteor 1864 June 16." by the same gentleman.

Also a paper "On the Principle of Lind's Anemometer" by Arthur Forbes Esq of Culloden.

Another paper was then read "On the principles of Cyclonic Storms, illustrated by two diagrams (geometrically projected) showing the progression of the cyclonic vortex, and the consequent shifts of wind resulting therefrom by. Lieut-Colonel Austen.

Saml. Chas. Whitbread

British Meteorological Society.

Ordinary Meeting.

January 18th. 1865.

S. C. Whitbread Esq. ~~Pres~~ President in the Chair.

The Minutes of the last meeting were read and confirmed.

The following gentleman were ballotted for and duly elected members of the Society.

Capt. P. Howard, 18 Edith Villas, Fulham.
Chas W. Stevens Esq, Eldon House, Upper Tulse Hill Surrey.

The List of books presented to the Society since last meeting was read.

A vote of thanks was voted to the donors, and a special vote to Mr. Drach for his presentation to the Library.

The following papers were then read: —

"On the great storms of July 11th 1863 at Troitsky and across a part of Russia" by Bryan Donkin Esq, with another account by W. Howard Esq of Kandrona Mills.

"On General Radiant Points of shooting stars in the Reports of the British Association." By A.S. Herschel Esq B.A & R. P. Greg Esq. F.G.S.

"On observation on Meteor Showers and their Radiants" by. R. P. Greg Esq.

"Suggestions, Inferences & Observations on Tabular Results of the Barometric & Thermometric Records on 37 days of the Bulletin International" by Lieut. Col Austen.

The Author said, " If the period of a month or two may be deemed a fair criterion of the Average Barometric Maximum range, in Europe, it would follow that the Maximum balances itself periodically as a vibratory Movement, (oscillating like a magnet,) between the area East and West of the Vertical Meridian here given; which, being nearly Midway between those two powerful positive icy poles of electricity, Iceland and Spitzbergen, may be said to constitute the North and South Vertical - (or Line of Zeros), as in a compass - and these oscillations again may be subordinate to the superior influence of the North American, and Siberian Magnetic Poles respectively - whilst the upper atmospheric Strata the fons et origo, Imagine,

of <u>all</u> great aerial Phenomena, are repelled or attracted, from or to, either pole, according as they are charged with positive or negative electricity — and in a converse Ratio to the Earth's magnetism acting at right angles thereto within the area subject thereto locally, as here in <u>Europe</u>; electricity and magnetism being assumed to be equivalently the reagents constantly in antagonism, above and within our Planet — From 1200 to 1400 English miles seem to have formed the maxima of oscillatory curvature, within the period here recorded; for the maximum flew from Leghorn to Nairn, 1200 miles, between 7 and 8, and from Naples to Moscow and back again twice reciprocally in 4 consecutive days or 1400 miles and on 28th of October from Helsingfors to Naples — also 1400 miles."

The names of the following six gentlemen were regularly proposed and ordered to be suspended in the usual manner: —

A. S. Bartley Esq M.D. Assistant Surgeon 101st Regt. Dugshae. Bengal.
Rogus. Field Esq B.A. 18 Manchester Buildings. Westminster
Lieut. F. Galloway R.A. Shoeburyness. Essex.
F. Moser Esq. Mudeford House Christchurch Hants.
Capt. J. Sprot 83 Regiment. Chatham.
W. H. Valpy Esq M.D. 18 Grosvenor Crescent. SW

Jam: Cha: Whittrea

British Meteorological Society.

Ordinary Meeting.

1865. February 15th.

S. C. Whitbread Esq. President in the Chair.

The Minutes of the last meeting were read and confirmed.

The following gentlemen were balloted for and duly elected members of the Society.

A. S. Bartley Esq. M.D. Assistant Surgeon 101st Regt Dugshai, Bengal.
Rogers Field Esq. B.A. 18 Manchester Buildings Westminster.
Lieut F. Galliwey. R.A. Shoeburyness. Essex.
Fred Moser Esq, Mudieford House. Christchurch.
Capt. J. Sprot, 83 Regt. Chatham.
W. H. Valpy Esq. M.D. 18 Grosvenor Crescent S.W.

The following papers were then read:—

(1) "On the Mean Temperature of every day," "from all Thermometrical Observations taken" "at the Royal Observatory, Greenwich," "during the 50 years ending 1863." by James Glaisher Esq. FRS. &c.

The paper is printed

(2) "On the Secular Increase of Mean Temperature" by the same author.

Mr. Glaisher said that the mean temperature for every day in the year from the 43 yrs observations ending 1856 taken at the Royal Observatory Greenwich, were published in the annual Report of this Society for 1857 and that the mean temperature for the year from those observations was 48°.92; and that the application of the 7 years ending 1863 to the previous 43 years, had had so great an influence as to increase the mean to 49°.03, shewing a difference of 0°.11, and by discussing all the Observations from 1771, there appeared an increase of 2° in the mean temperature in the last 100 years

The paper is printed in extenso

The names of the following three gentlemen were regularly proposed, and ordered to be suspended in the usual manner.

Jno Browning Esq, 179 Strand & 111 Minories
W. C. Hughes Esq, 73 Upper Stamford Street Waterloo Road
T. T. Pyle Esq MD, The Esplanade. Bishop Wearmouth.

Antonio Brady

British Meteorological Society.

Ordinary Meeting.
1865 March 15.

Antonio Brady Esq. F.G.S., Vice President in the Chair.

The Minutes of the last meeting were read and confirmed.

A list of books presented to the Society since last meeting were read.

The following gentlemen were balloted for and duly elected members of the Society.

John Browning Esq. 179 Strand and 111 Minories.
W. C. Hughes Esq. 73 Upper Stamford St Waterloo Rd.
Thos. Thompson Pyle Esq. The Esplanade. Bishop-Wearmouth.

The following communications were then read:—

On the Pressure and Diffusion of Elastic Fluids. By John Bloxam Esq M.B.M.S.

"On the General Weather of Europe during the Month of January 1865. By A. J. Cunning Esq."

"Notes" On the Climate of Southland. By Chas. Rous. Marten Esq., of the Observatory Martendale, Royal Bush, New Zealand."

"On Meteorological History of Southland" by the same Author.

"Natural History Notes" By T. A. Preston Esq. Marlborough College."

"Some Effects of the Cold in January. By the same author."

"On the Storm which was so severely felt in the more Northern Counties during the Night of the 5th of January" By A Forbes Esq of Culloden.

"On a Peculiarity in a Cyclone." By W. R. Birt Esq."

"On the Aurora of 1865, February 17" By A. S. Herschel Esq.

The following gentleman who had been duly elected a member of the Society, subscribed the form No. 2 and having paid his first annual subscription was admitted into the Society:—

Commander P. H. Colomb.
18 Edith Villas. Fulham SW

The name of one candidate for admission into the Society was then read.

Jam. Chas. Whitbread
President —

British Meteorological Society.

Ordinary General Meeting

April 19th. 1865.

S. C. Whitbread Esqr. – President in the Chair.

The Minutes of the last meeting were read and confirmed.

J. Ingleby Mackenzie Esqr. M.B., of Belgrave House, Sidmouth. was balloted for and duly elected a Member of the Society.

The name of one candidate for admission into the Society was read.

The following communications were made to the Society: —

"On the Secular Change of Temperature of the air at Greenwich." By A. S. Herschel Esq.

"Notes on Daily Weather Diagram for 1864" By C. O. F. Cator Esq M.A.

"On Barometers with Scales of Inches and Millimètres" By L. Casella Esq.

"On the Performance of a Watch Aneroid Barometer". By. G. J. Symons Esqre.

"On Date of Rainfall, and Close of Rain Month" by the same author.

Saml. Chas. Whitbread
President -

British Meteorological Society.

Annual General Meeting.

June 21st. 1865.

S. C. Whitbread Esqre. — President in the Chair.

The Minutes of the last meeting were read and confirmed

Thomas William Morris Esqre. of Belgrave Nr. Aylesbury. was balloted for and duly elected a member of the Society.

The following communications were then made to the Society:—

"Notes on Mason's Hygrometer" by I Cavalier Esqre of Ostende. communicated by L. P. Casella Esqre.

Notes on Mr. Symons's paper on "Pocket Watch Aneroid Barometer" by G. Harvey Simmonds Esqre.

"On Mortality and Meteorology of London in 1864" by C. O. F. Cator Esqre.

"Notes on the Aurora Borealis of March 20th 1865." (Abstracts from Monthly Meteorological Returns) by James Glaisher Esqre.

"Letter on the difference between the Temperature of Greenwich and that of Newport" by John Bloxam Esqre.

"Letter on the Cyclone of October 1864 and Meteorology generally in India" by Henry T Blanford Esqre.

"Note on the Hailstorm of the 24th March" by the same gentleman

"On calling strong winds Cyclones, which are not Cyclones" by Lt. Col. Austen.

At the close of the Ordinary Meeting the Annual General Meeting was held, and the Report of the Council on the state of the Society during the past year was then read and adopted.

The Librarian reported that 97 volumes had been presented to the Society during the past Session, and a Vote of thanks was given to the donors.

The Treasurer's Account was then laid on the Table and there was found to be a balance of £73. 6. 10.

The following resolutions were then carried unanimously:—

Proposed by A. Brewin Esqre.
Seconded by C. Brooke Esqre.
"That the Report which has just been read, be received and adopted; and that it be printed and circulated among the Members of the Society."

Proposed by F. W. Doggett Esqre.
Seconded by R. F. Heath Esqr. B.A., L.C.P.
"That the thanks of the Society be given to the Officers for their services during the Session that has now closed"

Proposed by C. Brooke Esqre
Seconded by H. S. Eaton Esqre.
That the best thanks of the Society be given to Mr. Walker, for the valuable services which he has rendered as one of the Secretaries in editing the Proceedings up to the end of the last Session.

Proposed by G. J. Symons Esqre.
Seconded by Lieut-Col Strange.
"That a special vote of thanks be given to Mr. Eaton M.A. in acknowledgement of his valuable services as Librarian to this Society and the perseverance with which he raised the Library to its present satisfactory condition."

Proposed by W. P. Dymond Esqre.
Seconded by D. Slate Esqre.
"That the thanks of the Society be given to S. C. Whitbread Esqre. Vice-President for the very courteous manner in which he has conducted the business of the Society devolving on him through the indisposition and decease of our lamented President."

Proposed by A. J. Cumming Esqre.
Seconded by J. P. Harrison Esqre.
"That the cordial and best thanks of The British Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their meetings in the Rooms of their Institution during the Session that has just ended."

The President appointed G. H. Simmonds Esq^re and Thomas Read Esq^re, as Scrutineers; and a ballot was then taken, and the following list of members, prepared and proposed by the retiring council, was received and adopted as officers and council for the Seventeenth Session 1865–66. they being all elected unanimously

President

C. Brooke Esq^re M.A., F.R.S.

Vice – Presidents.

N. Beardmore Esq^re C.E., F.R.A.S.
J. Lee Esq^re LL.D., F.R.S., F.R.A.S.
T. Sopwith Esq^re M.A., F.R.S.
S. C. Whitbread Esq^re F.R.S., F.R.A.S.

Treasurer.

H. Perigal Esq^re F.R.A.S.

Secretaries

J. Glaisher Esq^re F.R.S., F.R.A.S.
J. W. Tripe Esq^re M.D.

Foreign Secretary.

Lieut–Col Strange F.R.S., F.R.A.S.

Librarian

A. J. Cumming Esq^re A.K.C.

Council

A. Brady Esq^re M.M.S.
A. Brewin Esq^re
Sir Chas. Bright C.E., F.R.A.S.
C. O. F. Cator Esq^re M.A.

W. P. Dymond Esqre.
H. S. Eaton Esqre.
J. P. Harrison Esqre. M.A.
S. W. Silver Esqre.
D. Slate Esqre.
A. Smith Esqre. M.P.
G. J. Symons Esqre.
C. V. Walker Esqre. F.R.S., F.R.A.S.

Chas Brooke

British Meteorological Society.

Ordinary Meeting.

1865 November 15th.

Chas. Brooke Esqre. – President in the Chair.

The Minutes of the last meeting were read and confirmed.

The following gentlemen were balloted for and duly elected members of the Society.

James Austin Esqre. 13 Moorgate Street E.C.
Revd. Alex Beverley A.M. Ashley Place — Cuparstone. Aberdeen.
F. E. Carey Esqre. M.D. Guernsey.
Joseph Gledhill Esqre. St Paul's School. Halifax.
Capt. O. A. Stokes R.E. Dingle, Kerry. Ireland.
Richard Strachan Esqre. 11 Offord Row. Barnsbury.

The name of one candidate for admission into the Society was read.

The following communications were made to the Society:—

"On extended series of Meteorological Observations in Russia", by Lieut Rikatcheff I.R.N. (being a translation from the

Report of the Director of the Hydrographical Department of Russia.")

"On the first publication of the results of the extended series of Meteorological Observations in Russia by Lieut Rikatcheff

"On the Meteor Shower of November 12-13 1865." by James Glaisher Esqre

"On Temperature at Greenwich and at Newport." by John Bloxam Esqre

"On the great atmospheric changes at the end of October 1865" by James Glaisher Esqre & A. J. Cumming Esqre

"On the Rainfall in the Month of October" by G. J. Symons Esqre

Chas Brooke

British Meteorological Society.

Ordinary Meeting

1866 January 17th.

Chas. Brooke Esqre., M.A., F.R.S. — President in the Chair.

The Minutes of the last meeting were read and confirmed.

Lieut. Edmund Hope Verney. R.N. of Claydon House, Bucks. was balloted for and duly elected a member of the Society.

The Librarian read a list of eight books presented to the Society since last meeting.

The names of three candidates for admission into the Society were read.

The Translation of some Remarks by Professor Wolf on Professor Lamont's paper on the 10-year Period of the Magnetic Variation, and of the Solar Spots. by W. T. Lynn Esqre B.A.
was then communicated to the meeting by Mr. Glaisher.

A short discussion followed in which Messrs. Brooke, Glaisher, and Stewart took part.

A vote of thanks was given to Mr Lynn.
Some remarks were then made on the recent extraordinary snow fall of January 11th.

Mr Glaisher spoke of the damage done to trees &c in Greenwich Park. He said that all communication from the Earth currents at the Royal Observatory had been completely stopped. The snow when measured in an entirely unsheltered place was 5 inches deep and when melted in the usual manner had produced 1.4 inch of water, being fully three times the general quantity yielded. The peculiar tendency of sticking to the things with which it came in contact was also worth noticing.

The President said that that peculiar kind of snow was quite a recognised phenomenon in New-Brunswick, and is known by the name of "sticking snow"

Mr Walker referred to the destructive effects on Telegraphic Communication on the South-Eastern Railway Company's lines. He said that at many parts the communication had been completely cut off, the wires either having snapped asunder or lowered down to the ground, not so frequently caused by the levelling of the supporting posts, but in places where

the posts had escaped, merely by the extreme elongation through the weight of the snow. — The greatest amount of damage had been experienced between the stations of Paddock Wood and Red Hill on the Main Line. Although no parts of the lines had entirely been free, still numerous places might be referred to as having sustained considerable destruction amongst which might be mentioned Lewisham Junction where as many as 22 wires were suspended together. Mr Walker believed the effects of the storm had not been so great in the more northern parts of the country, but had been chiefly confined to the southern counties. Snow-storms of like kind had only occurred three times during his experience of 20 years, viz in the year 1849, once last year and on the present occasion.

"A Description of a New Anemometer" by C. O. F. Cator Esqre, M.A., was then read to the Meeting showing its advantages over other Anemometers in present use. The author also gave an illustration of the Instrument. Several of its record sheets were also exhibited.

Mr. Cuming referred to Mr. Howlett's Anemometer and to an advantage in its pressure-plate, and also wished to know

whether a piece of steel chain could not be with advantage substituted for the cord used for connecting the wind vane with the recording apparatus, in order that the register should not be effected by elongation.

Mr Cator said that that, as well as other things had previously been tried, but that experience had proved the cord to be best.

Mr Glaisher said that the Instrument had certain advantages over Osler's Anemometer, particularly in the registration of small pressures, on account of its sensitiveness. He also referred to the ~~present~~ advantage of not using a spring, which after considerable use needs a correction to the scale in order to get at the correct pressure, whilst by the use of the lever probably no such correction is wanted.

A vote of thanks was then given to the author.

The President said that he hoped to be able to announce the Incorporation of the Society by Royal Charter at the next meeting.

E L J Brooke

The Meteorological Society

Ordinary Meeting.

1866 February 21st.

Chas Brooke Esq, M.A., F.R.S. — President
in the Chair.

The Minutes of the last meeting were read and confirmed.

✓ J. W. Luck. Blore Esq. Secretary to Govt.
Meteorological Commission, Cape
of Good Hope.

Thomas. Henry. Davis Esqre — Orleton, Worcestershire.
William. Frederick. Harrison Esqre — Barhoffs,
Weybridge, Surrey

were balloted for and duly elected Fellows of the Society.

The Librarian read a list of books presented to the Society since last meeting.

The names of three candidates for admission into the Society were then read.

The President then announced to the meeting that the Charter of Incorporation had been granted to the Society and also exhibited the same.

The Charter was then read by the Secretary.

The President moved that a vote of thanks be given to Mr. Brewin for the valuable services he had rendered to the Society in obtaining the Charter.
which was carried unanimously.

The following communications were made to the meeting:—

"On the Daily Weather Diagram for 1865 and the comparisons of the Curves of each of the Elements delineated thereon with each other and with the Weekly Imperial Average prices of Wheat and with the Mortality." by C. O. F. Cator Esqre. M.A.

The diagrams for both 1864 and 1865 were exhibited.

A discussion followed in which Messrs. Tripe, Glaisher, Brooke, Harrison and Eaton took part.

A vote of thanks was given to the author.

"On the progress of rainfall investigation since the year 1863, and on the fluctuations of the annual fall of rain".
by G. J. Symons Esqre.

Several diagrams were exhibited relating to the paper.

A few remarks were made by Mess^rs Casella, Glaisher, and Brooke chiefly in reference to the size of rain-gauges.

A vote of thanks was given to the author.

Prof Clum of New York then made a few remarks on a new barometer, he had lately brought from America for M^r Glaisher's verification, and which he hoped would prove more sensitive than the ordinary Standard Barometer in present use.

M^r Creswick placed on the table some charts for the registration of the weather.

Mess^rs Browning and Hicks were appointed auditors, to review the accounts of the Society, before entering on its new career as a Corporate Body.

Chas. Brooke

The Meteorological Society.

Ordinary Meeting

1866 March 21st.

Chas Brooke Esqre M.A. F.R.S. — President in the Chair.

The Minutes of the last meeting were read and confirmed.

Franklin G. Evans Esqre — Typant, Pentyrch, Cardiff.
Thomas. H. Morgan Esqre — Ore, Hastings.
Fenwick William Stow Esqre — Charterhouse
were balloted for and duly elected fellows of the Society.

The Librarian read a list of books presented to the Society since the last meeting, and a vote of thanks was given to the donors.

The names of ten candidates for admission into the Society were read.

A paper was read to the meeting on "The Winter Temperature of Switzerland" by Prof Plantamour. Translated from the original by James Glaisher Esqre F.R.S.

Mr Symons made some remarks on Rain Gauges, and exhibited several of various materials, with which he intended to make experiments on the different results, obtained by the various gauges; and the results of which he said he would furnish to the Society at a future meeting. A few remarks were made by Messrs Casella and Browning.

Mr Glaisher said that ~~from~~ his experience led him to have little faith in the results by the use of gauges of less than 8 inches in diameter.

Chas. Brooke.

The Meteorological Society.

Special General Meeting.

1866 March 21st.

Chas Brooke Esqre M.A., FRS. – President in the Chair.

The Secretary reported, that a meeting of the Committee appointed to revise the Bye-laws of the Society in accordance with the Royal Charter of Incorporation, had taken place, and that the revised Bye-laws would be read

Mr. Brewin then read the new laws of the Society pointing out the corrections proposed by the Committee.

It was proposed by W. Camps Esq M.D.
seconded by Jno. Browning Esqre
"that these laws be adopted as the future Bye laws of the Society and that they be printed and circulated amongst the members.

The Meteorological Society.

Ordinary Meeting

1866 April 18th.

C. Brooke Esqre. M.A., F.R.S. — President in the Chair.

The Minutes of the last meeting were read and confirmed.

Conrad William Cooke Esq., The Ferns, Hyde Park Gate. W.
Edward Ernest Dymond Esq., Highworth, Wilts.
Edmund Field Esq., Hastings.
Charles Mends Gibson Esq., Bethel Street, Norwich.
Gaylard Hadwen Esq., Fairfield, near Manchester.
James Staughton Harding Esq., 14 Bloomfield Terrace, Pimlico S.W.
John Mercer Esq Junr., Great Harwood, near Blackburn, Lancashire.
Henry Southall Esq., Ross, Herefordshire.
H. C. Westcar Esq., Royal Horse Guards, Windsor.
W. Whitehead Esqre. L.F.P.S., Mansfield, Woodhouse, Notts.

were balloted for and duly elected Fellows of the Society.

The names of four Candidates for admission into the Society were read.

The Librarian read a list of books presented to the Society since last meeting, and a vote of thanks was given to the donors.

A paper was read on "Analysis of the Winds" by Jno. C. Bloxam Esqre M R C S.

A paper was then read "On Rain Gauges" by R. Strachan Esqre

Chas. Brooke

The Meteorological Society.

Ordinary Meeting

1866 June 20th.

C. Brooke Esqre. M.A., F.R.S. — President in the Chair.

The Minutes of the last meeting were read and confirmed.

Revd. G. W. Brameld M.A., East Markam W. Tuxford, Notts.
Samuel Courtauld Esqre., Gosfield Hall W. Halstead, Essex.
Thomas Dibbs Esqre., Wimbledon, Surrey
Revd. E. J. May D.D., Standard Hill Nottingham.
F. Pastorelli Esqre., 208 Picadilly.
Capt. Thomas Waring, Waringstown, County Down, Ireland.
Wm Westgarth Esqre. Junr., 5 Hadley St, Kentish Town. NW.

were balloted for and duly elected Fellows of the Society.

The name of one Candidate for admission into the Society was read.

The following communications were

made to the Meeting:—

"On the Barometrical Pressure, Temperature, and Rain-fall of Birmingham from observations taken from 1853 to 1864." by David Smith Esq F.R.A.S., F.M.S.

"Results of Meteorological Observations taken at Mentone (Western Bay) South of France during the winters 1863-64, 1864-65, and 1865-66." By D. A. Freeman Esqre F.M.S.

A short discussion followed in which Mr Casella and Dr Camps took part.

"On the Climate of the Colony of Natal." By Dr Mann F.R.A.S., F.M.S. Superintendent of Education in the Colony.

A discussion followed on the chief characteristics of Natal in which Messrs Browning, Brayley, Freeman, Brady and Doggett took part.

"On the best means of measuring Terrestrial Radiation." by Fenwick W. Stow Esqre M.A. F.M.S.

A few remarks on this subject were made by Mr Glaisher.

On the Prevalence of Rain in the North Atlantic, South Atlantic, and a part of the North Pacific Oceans. by Frederick Gaster Esqr F.M.S.

A vote of thanks was given to the respective authors of the papers.

At the close of the Ordinary Meeting, the Annual General Meeting was held, and the Report of the Council on the progress of the Society during the past year was then read and adopted.

It appeared that the Treasurer had had occasion to leave the meeting early and by accident had forgotten to leave the balance sheet for the approval of the Meeting.

It was therefore proposed by Mr Brayley and seconded by Dr Camps.
"That the responsibility of the accounts of the Society for the past year be referred to the Council." and was carried unanimously.

The following resolutions were then carried unanimously:—

Proposed by E. W. Brayley Esqr. FRS
Seconded by F. W. Doggett Esqr.
"That the Report which has just been read, be received and adopted; and that it be printed and circulated amongst the Fellows of the Society."

Proposed by Wm. Camps Esqr. M.D. F.S.S
Seconded by L. P. Casella Esqr. F.R.A.S.
"That the cordial and best thanks of 'The Meteorological Society' be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their Meetings in the rooms of the Institution during the Session that has just ended."

Proposed by W. Hering Esqr. M.D.
Seconded by E. W. Brayley Esqr. FRS.
"That the thanks of the Society be given to the Officers for their services during the Session that has now closed."
The President then appointed W. Camps Esqr. M.D., and W. Hering Esq M.D., as Scrutineers, and a ballot was then taken, and the following list of fellows, prepared and proposed by the retiring council, was received and adopted as

Officers and Council for the Eighteenth Session 1866-67.

President

Chas Brooke Esqre M.A. F.R.S.

Vice-Presidents.

N. Beardmore Esqre, C.E., F.R.A.S.

W. P. Dymond Esqre

T. Sopwith Esqre M.A., F.R.S.

C. V. Walker Esqre, F.R.S., F.R.A.S.

Treasurer

H. Perigal Esqre, F.R.A.S.

Trustees

A. Brady Esqre, F.G.S.

S. W. Silver Esqre,

Secretaries

J. Glaisher Esqre F.R.S., F.R.A.S.

J. W. Tripe Esqre M.D.

Foreign Secretary

Lieut-Col Strange, F.R.S., F.R.A.S.

Council.

J. C. Bloxam Esqre M.R.C.S.

E. W. Brayley Esqre F.R.S., F.G.S.

A. Brewin Esqre F.R.A.S.

Sir Chas. Bright M.P. F.R.A.S.

C. O. F. Cator Esqre M.A.

A. J. Cuming Esqre A.K.C.

F. W. Doggett Esqre

H. S. Eaton Esqre M.A.

G. H. Simmonds Esqre

G. J. Symons Esqre
G. V. Vernon Esqre F.R.A.S.
S. C. Whitbread Esqre F.R.S.

The President then announced that the Ordinary Meetings of the Society would in future commence at 8th o'clock instead of at 7th as previously.

Chas. Brooke.

The Meteorological Society

Ordinary Meeting

1866 November 21st

C. Brooke Esq. M.A. F.R.S. – President in
the Chair

The Minutes of the last Meeting were read
and Confirmed. –

Henry Samuel Tabor Esq.
16 Lansdowne Rd. Notting Hill

Dr Barker 14 Eaton Place. Brighton
Sussex.

were balloted for and duly elected Fellows
of the Society.

The Names of Four Candidates for admission
into the Society were read.

Several presents were announced, and thanks
were voted to the Donors

The following communications were made to
the Society.

Comparison of Standard Barometer at
at different Observatories in Europe, & determination
of their several Index errors. By Lieut Rikatcheff
I. R. N. St Petersburgh

Comparison of Thermometer at different Observatories
in Europe &c. (ditto) By Lieut Rikatcheff. I. R. N
St Petersburgh

A Cordial Vote of Thanks were voted to..

Mr Rikatchiff.

On the percentage of Rainy Weather By R. Strachan Esq. F.M.S.
On an Improved Anemometer By L. P. Casella Esq. F.R.A.S.
On the Meteoric Shower of November 13th - 14. 1866.

By. W. T. Lynn. Esq. B.A. F.R.A.S. Greenwich.
" Henry. J. Slack. Esq. Camden Square
" Rear Admiral Ommanney. Paddington
" T. Sopwith Esq. M.A. F.R.S. London.
" A. Claudet Esq. F.R.S. Primrose Hill.
" Professor A. S. Herschel Glasgow.
" Lord Wrottesley. Wolverhampton.
" C. H Weston. Esq. B.A. F.R.A.S. Lansdowne (above Bath)
" Rev. J. B. Snow. Downside. Bath.
" J. Graham Esq. Darlington
" Geo. C. Thompson. Esq. Cardiff.
" R. P. Grey Esq. Manchester.
" J. Southall. Esq.
" Rev. W. Sidgreaves. Stonyhurst College
" W. Brooke. Esq. Norwich.
" W. Millard Esq. Lowestoft.
" J. H. Waller Esq. York
" A Batson Esq. Ramsbury. Nr Hungerford
" A. M. Moyle Esq. Heston.
" A. Forbes Esq. Culloden
" Lieut. Rikatchiff.. I. R. N. St Petersburgh
" W. M. Black

Chas. Brooke

The Meteorological Society

Ordinary Meeting

1867 January 16th

C. Brooke Esq. M.A. F.R.S. _ President in the Chair.

The Minutes of the last meeting were read and Confirmed. _

A. Mercer Adam Esq. M.D. _ Bargate Lodge, Boston Lincolnshire.
Frederick, Bernard Doring. Esq. _ 27 Duke St. Picadilly.
John Marshall. Esq. _ Menidale Road. Wolverhampton
H. E. Segrave Esq. _ 21 Dorset Square W

were balloted for and duly elected. Fellows of the Society

The names of four Candidates for admission into the Society were read.
Several presents were announced, and thanks were voted to the donors

The following communications were made to the Society

On Terrestrial Magnetism By John Bloxam Esq. F.M.S.

On the Evaporation of Rain from rain gauges _ By G. Harvey. Simmonds Esq. FMS

On the differences of temperature of two Strata of Air at unequal heights, Translated from a communication by Professor D. Ragona - Scina, Director of the Royal Observatory a Modena, to the Austrian Meterological Society; with Addenda._ By J. Staughton Harding Esq. FMS.

On the Anemometers at the Royal Observatory, Greenwich._ By John Browning Esq_ FRAS.

Notices of Luminous Meteors By Captain "James Loughton"_ H. S. Millard

Chas. Brooke

The Meteorological Society.

Ordinary Meeting

1867 February 20th

C. Brooke Esq. M.D. F.R.S. _ President in the Chair.

The Minutes of the Last meeting were read and Confirmed.

Alfred Carpenter Esq. M.D. Croydon
Rev. W. Tuckwell. The College School. Taunton
Thomas. A. Compton. Esq. M.D. L.R.C.S. M.R.C.S.
2 Palmerston Gardens, Bournemouth.
Frederick. M. Williams Esq. M.P. Goonrea, Nr Truro.

were balloted for and duly elected Fellows of the Society.

The names of four Candidates for Admission into the Society were read
Several presents were announced, and thanks were voted to the donors.

The following communications were made to the Society

On The evaporation gauge By. G Hany Simmonds Esq. F.M.S.

On Atmospheric Pressure in Natal. South Africa. By R. J. Mann Esq MD. FRAS FMS.

On the Earth-current, and Telegraphic currents. By Professor Lamont. Translated by Mr Lynn

Chas. Brooke.

The Meteorological Society

Ordinary Meeting

1867 March 20th.

C. Brooke Esqre. M.A. F.R.S. - President
in the Chair.

The Minutes of the last Meeting were read and confirmed.

A. W. Bickerton Esq. 25 Cattles Grove
Birmingham.
Captain A. Harrison R.A. Secretary
Royal Artillery Institution
Robert J. Mann. Esq. M.D.

Major J. F. Tennant.

~~were~~ balloted for and duly elected Fellows of the Society

The names of three Candidates for admission into the Society were read

Several presents were announced and thanks were voted to the donors

The following Communications to the Society were read

On the Influence of the Moon on the Direction of the Wind, as found from discussing the Observations of the wind for the Seventeen years from November 1840 to the end of the year 1847. By James Glaisher Secretary

On the Phenomena of Meteors by E. J. Lowe Esq

On the Shower of Meteors as observed at Christiania by M Pohl

On a ready rule for finding heights by the Aneroid, for any length less than 10,000 feet. by G. Harvey Simmonds Esq

Mr John Browning and Mr Nash, were appointed Auditors

On the principle of the Aneroid Barometer by the President

Charles V. Walker

17/4/67.

The Meteorological Society

Ordinary Meeting

1867 April 17th

C. V. Walker Esqre FRS. FRAS. Vice President in the Chair

The Minutes of the last Meeting were read and confirmed.

Warren De La Rue Esqre FRS. – 110 Bunhill Row E.C.

Rev Philip Hankinson Newnham M.A Gervis Villa Bournemouth

Lieut. G. L. Tupman. R.A. Eastney Barracks Portsmouth.

were balloted for and duly elected Fellows of the Society

The following communications to the Society were ~~made~~ read.

On the recently conjectured Identity of April Meteors with Comet I 1861. By W. T. Lynn Esq. B.A. FRAS of the Royal Observatory Greenwich

Meteorological Notes on Jersey. By Lieut – Col. Austen ~~Esqr~~ F.M.S.

On the Storm at Monte Video, 27th October 1866. By Albert De Lisle Esq.

On the Temperature at different Heights. By John Bloxam Esq. F.M.S.

On a Hailstorm at Leamington upon Sunday April 14th. 1867. By —
S. Urwick Jones Esq. F.M.S.

On determination of Heights from Barometer readings. By The Astronomer Royal.

Evaporation from Rain-Gauges — By —
G. J. Symons Esq. F.M.S.

Chas. Brooke.

The Meteorological Society

Ordinary Meeting

1867 June 19th

C. Brooke Esq. M.A., F.R.S. – President in the Chair

The Minutes of the last meeting were read and confirmed.

The Names of three Candidates for admission into the Society were read

The following communications were made to the Meeting

"On the Diurnal Variations of the Terrestial Magnetism" by John C. Bloxam Esq. F.M.S.

"The anemometric records of the Greenwich and Kew Observatories epitomised and collected"

A vote of thanks was given to the respective authors of the papers.

At the close of the Ordinary Meeting the Annual General Meeting was held, and

Proposed by the President
Seconded by Mr Cator
That the Bye Laws requiring personal knowledge of a person applying to be admitted as a Fellow be suspended in favor of Dr. Haast of Canterbury New Zealand, who is recommended by Dr. Hooker and that he be admitted a Fellow of the Society on compounding for his subscription, and if he request the proceedings of the Society to be sent to him, giving an address in England where they may be sent

the Report of the Council on the progress of the Society during the past year was then read and adopted.

The Treasurer's Account was then laid on the table and there was found to be a balance of £2-18-0

The following resolutions were then carried unanimously:—

Proposed by Dr. Hering
Seconded by R. J. Mann Esq. M.D
"That the Report, which has just been read be received and adopted, and that it be printed and circulated among the Fellows of the Society"

Proposed by C. Brooke Esq. M.A., F.R.S
Seconded by C. V. Walker Esq. F.R.S &c
"That the cordial and best thanks of the Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their Meetings, in the rooms of the Institution during the Session that has just ended"

~~That the best thanks~~

Proposed by F. Gaster Esq. F.M.S

Seconded by R. Strachan Esq. F.M.S

"That the best thanks of the Society be given to Dr Tripe for his services as Secretary with regret that his engagements prevented him being able to retain the office longer

The President appointed Dr Mann & Mr Browning as Scrutineers, a ballot was then taken and the following list of Fellows prepared and proposed by the retiring Council was then received and adopted as Council and Officers for the nineteenth session 1867-68:-

President

James Glaisher Esq. F.R.S., F.R.A.S &c

Vice - Presidents

A. Brewin Esq.r

W. P. Dymond Esq.r

H. S. Eaton Esq.r M.A

C. V. Walker Esq.r F.R.S., F.R.A.S

Treasurer

H. Perigal Esq. F.R.A.S. &c

Trustees

A. Brady Esq.r F.G.S.

S. W. Silver Esq.r

Secretaries

Chas. Brooke Esq.re M.A. F.R.S.

C. O. F. Cator Esq.re M.A.

Foreign Secretary

Lieut.-Col. Strange F.R.S., F.R.A.S.

Council

N. Beardmore Esq.re C.E., F.R.A.S. &c

E. W. Brayley Esq.re F.R.S. F.G.S.

W. Brooke Esq.re F.R.A.S

Geo. Dines Esq.re

F. W. Doggett Esq.re

Isaac Fletcher Esq.re F.R.S., F.R.A.S

W. Hering Esq.re M.D.

Rev. J. B. Reade M.A., F.R.S., F.R.A.S.

G. A. Simmonds Esq.re

Thos. Sopwith Esq.re M.A., F.R.S., F.G.S. &c

G. J. Symons Esq.re

S. C. Whitbread Esq.re F.R.S., F.R.A.S.

Proposed by Geo. Dines Esq.re

Seconded by A. S. Tabor Esq.re

"That the thanks of the Society be given to the Officers for their services during the Session that has now closed."

The President then announced that the Meetings of the Council would in future commence at 6 o'clock instead of at 7h as previously

James Glaisher

The Meteorological Society

Ordinary Meeting

1867 November 20th.

James Glaisher Esq. F.R.S., F.R.A.S. – President in the Chair.

The Minutes of the last Meeting were read and confirmed —

Rev. C. H. Griffith. M.A. — The Rectory, Strathfield Turgiss. Winchfield. Hants.

William John Harris ~~Esq.~~ M.R.C.S. Engd — Worthing Sussex.

Henry John Mann Esq. – Paradise Villa, Green Lane, Stoke Newington.

William Salmon Esq. R.N. – Meteorological Office 2 Parliament Street. S.W

were balloted for and duly Elected Fellows of the Society

Several presents were announced and thanks were voted to the donors.

The following Communications were made to the Society

"On the Hourly Frequency of Rain; and Fall of Rain, in connection with the Diurnal Change of the Declination Magnet, for the years 1861-66"
By James Glaisher Esq. F.R.S.

"On an improved Method of Dividing Alcohol and other Thermometers."
By William Ackland Esq.

"On the erection of an Anemometer at Beckenham in Kent"
By. C.O.F. Cator Esq. M.A., F.M.S.

"Meteorological results for the years 1862-3-4-5-6 at Leamington"
By S. Urwick Jones Esq. F.M.S.

Not published in the No. of the Proceedings ?

~~"On the Meteors of the 14th November 1867"~~
~~By W. H. Wood Esq.~~
~~George Young Esq.~~
~~F. Webb Esq.~~

James Glaisher

The Meteorological Society

Ordinary Meeting

1868 January 15th

James Glaisher Esq. F.R.S. &c - President, in the Chair

The Minutes of the last Meeting were read and confirmed.

The names of Two Candidates for admission into the Society were read

Several presents were announced and thanks were voted to the donors.

The following communications were made to the Society:—

"On the Frequency of Rain at the different Hours of the Day in the several Months and Seasons of the Year. - By James Glaisher Esq. F.R.S &c &c"

"On changes of Mean Temperature in long periods" by W. T. Lynn Esq. B.A."

"The November Meteors of 1867 by:-

Royal Observatory	Washington
W. H. Wood. Esq.	Richmond.
R. P. Greg Esq.	Albany
F. Webb Esq.	Troy
Geo. Young Esq.	Poughkeepsie
C. H. Weston Esq.	Evanston
Prof. A. S. Herschel	Detroit
M. W de Fonvielle	Scranton.
Prof F. Denza	Wilmington
Toronto	New Haven
New York	Charleston

New Orleans

Martinique and Trinidad from Commander Chimmo
Cape of Good Hope - - - - - Maclear Esq.

"Account of an &c meteor seen at Fort Beaufort. by G. W. Bennett Esq."

James Glaisher

The Meteorological Society

Ordinary Meeting

February 19th. 1868

James Glaisher Esq. F.R.S., F.R.A.S. President in the Chair

The Minutes of the last Meeting were read and confirmed

A. Morton Festing Esq. - Deputy Assistant Commissary General, Commissariat Department, Kilkenny.
Murray Thompson Esq. M.D. Meteorological Reporter to the Government for the N.W. Province of India

were balloted for and duly elected Fellows of the Society

Several Presents were announced and thanks were voted to the Donors.

The following Communications were made to the Society

"On some of the laws which appear to regulate the temperature of months and seasons" by G. D Brumham Esq."

"Accounts of the Earthquake which visited ~~Tortola~~ the Virgin and adjacent islands on Nov. 18 - 1867

Tortola .. Lieut. Governor Sir Arthur Rumbold

Admiralty Bay, Bequia -- J. M. Browne Esq.

" " - 2nd Account -- Extracted from the "Witness" Newspaper

St. Vincent --- Lieut. Governor G. Berkley.

Grenada --- Lieut Governor Mundy.

" 2nd Account -- from the "St. George's Chronicle"

Gouyave --- "Extracts from Official Report"

"On the reduction of Barometer readings in Cistern Barometers with Variable Levels by Dr C. Jelinek' Translated by W. T. Lynn Esq. B.A. F.R.A.S"

"On the Prevalence of Rain, Thunder, Lightning, and Fog, in the South Atlantic North Atlantic, and a part of the North Pacific Oceans." by Frederic Gaster Esq. F.M.S.

James Glaisher

The Meteorological Society.

Ordinary Meeting

1868 March 18th

James Glaisher. Esq. F.R.S., &c. President in the chair.

The Minutes of the last meeting were read and confirmed —

The Names of Three Candidates for admission into the Society were read

Several presents were announced, and thanks were voted to the donors

The following communications were made to the Society:—

" On the Fall of Rain, at the different hours of the day, in the several months and seasons of the year. By James Glaisher. Esq. F.R.S., &c.

" On the Influence of the Moon upon the Fall of Rain, in respect to her Age" By Geo. Dines Esq. F.M.S.

not published

On the Gale of the 24th of January 1868.
from Culloden &c.

James Glaisher

The Meteorological Society

Ordinary Meeting

15th April 1868

James Glaisher Esq. F.R.S. &c President, in the Chair

The Minutes of the last Meeting were read and confirmed

R. C. Cann Lippincott Esq. - Highcliffe House, Eastbourne

Charles Meldrum Esq. M.A. - Mauritius.

William ~~Provite~~ (Rev) Little Wratting. Suffolk were balloted for and duly elected Fellows of the Society.

Several presents were announced and thanks were voted to the donors.

The following communications were made to the Society.

"On the Rain Fall in Natal, South Africa by R. J. Mann Esq. M.D., F.R.A.S., F.R.G.S &c &c"

"On the Influence of the Sun's Hour-angle on the Developement of Ozone" by R. C. Cann Lippincott Esq.

"On a Self-Recording Anemometer" by S. B. Howlett Esq.

James Glaisher

The Meteorological Society

Ordinary Meeting

1868 June 17th

Jas. Glaisher Esq. F.R.S., F.R.A.S., President in the Chair

The Minutes of the last Meeting were read and confirmed

Rev. Chas. John Steward, - Somerleyton Rectory
Lowestoft.
W. J. Treutler Esq. M.D., - Kew Green, London W.
were proposed in Council, and balloted for, and duly elected Fellows of the Society at the Ordinary Meeting.

The following communications were made to the Society.

"On the Rainfall in the Mauritius" by Chas. Meldrum Esq. M.A., F.M.S.

"Notes on the unusual heat of May 19th 1868" by W. C. Nash Esq. F.M.S.

"Description of a New Ozone Cage" by A. M. Festing Esq. F.M.S.

At the close of the Ordinary Meeting, the Annual General Meeting was held, and the Report of the Council, on the progress of the Society during the past year, was then read and adopted.

The Treasurer's account was then laid on the Table, and there was found to be a balance of £37. —

The following resolutions were then carried unanimously.

Proposed by L. P. Casella Esq
Seconded by H. S. Tabor Esq

That the Report which has just been read be received and adopted, and that it be printed and circulated among the Fellows of the Society

Proposed by G. J. Symons Esq.
Seconded by Geo. Dines Esq.

That the Cordial and best thanks of the Meteorological Society, be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their Meetings in the Rooms of the Institution during the Session that has just Ended.

Proposed by A. Brewin Esq.
Seconded by H. S. Eaton Esq.

That the best thanks of the Society be given to ~~Dr Phipson~~ C. O. F. Cator Esq for his services as Secretary with regret that his engagements prevent him being able to retain the office longer

The President having appointed Dr Mann & Mr Pastorelli as Scrutineers; a ballot was then taken, and the following list of ~~Members~~ Fellows, prepared and appointed proposed by the retiring Council, was received and adopted, as Council and Officers for the ~~ninet~~ twentieth Session 1868-69

President
Jas Glaisher, Esq. F.R.S., F.R.A.S. &c

Vice-Presidents
A. Brewin Esq
H. S. Eaton Esq. M.A
Thos Sopwith, Esq. M.A., F.R.S., F.G.S.
S. C. Whitbread Esq F.R.S., F.R.A.S.

Treasurer
Henry Perigal Esq. F.R.A.S., &c

Trustees

Antonio Brady Esq. F.G.S. &c

S. W. Silver Esq.

Secretaries

C. Brooke Esq. M.A. F.R.S. &c

John W Tripe Esq. M.D.

Foreign Secretary

Lieut-Col Alex Strange F.R.S., F.R.A.S.

Council

W. Beardmore Esq. C.E., F.R.A.S. F.G.S.

Samuel Barker Esq. M.D.

E. W. Brayley Esq. F.R.S., F.G.S. &c

Geo. F. Burder Esq. M.D.

F. J. Burge Esq.

C. O. F. Cator Esq. M.A.

Geo. Dines Esq.

F. W. Doggett Esq.

W. Hering Esq. M.D.

R. J. Mann Esq. M.D., F.R.A.S., F.R.G.S.

G. J. Symons

C. V. Walker Esq. F.R.S. F.R.A.S.

Proposed by Dr Mann M.D.

Seconded by W. C. Nash Esq

That the thanks of the Society be given to the Officers for their services during the Session that has now ended.

James Glaisher

The Meteorological Society

Ordinary Meeting

1868, November 18th.

James Glaisher Esq. F.R.S., President, in the chair

the minutes of the last meeting were read and confirmed.

C. S. Barter Esq. M.B., (Univr. Lond.) F.R.C.S. Eng. – 27 Paragon, Bath
A. S. Hobson Esq – 3 Upper Heathfield Terrace, Turnham Green.
C. A. Langton Esq., M.A. (Gonville & Caius College Camb.) 14 Montpelier St. Brighton
Benjamin Loewy Esq – 17 Shaftesbury Villas, Richmond S.W.
The Honourable Rollo Russell – Pembroke Lodge, Richmond S.W

*were balloted for and duly elected Fellows of the Society

The Name of One Candidate for admission into the Society was read

A large number of presents were announced, and thanks were voted to the donors.

* The above gentlemen were proposed at the Council Meeting on October 21st.

The following communications were made to the Society:-

"Notes concerning an exceptionally heavy Rainfall, and a destructive Flood, in the colony of Natal, in the month of August 1868." By R. James Mann Esq. M.D., F.R.A.S. F.R.G.S. &c

" On the Rainfall of ~~Walt~~ Cobham and Chiswick" By Geo. Dines Esq. F.M.S.

" A Journal of Natural Appearances and Occurrences in Farming &c" By Henry Cox Esq.

also the following paper which was rejected by the Council. -

"On the Earthquakes of Comrie, and the probable cause". By James Drummond Esq.

the President then drew the attention of the Meeting to some diagrams representing the Max. & Min. Temperatures, Departure above and below the average Mean Temperature, and the Departure above and below the Mean Degree of Humidity for in connexion with the great summer of 1868; also to a diagram showing the radiant point of the Shooting stars of Nov 13-14th 1868. and which is the same as in the preceding years viz 1866 & 1867.

James Glaisher

The Meteorological Society

Ordinary Meeting

1869. January 20th

James Glaisher, Esq. F.R.S. &c. President in the Chair

The minutes of the last meeting were read and confirmed

Percy Bicknell, Esq., Foxgrove, Beckenham, Kent, S.E. was balloted for and duly elected a fellow of the Society.

The names of five Candidates for admission into the Society were read

Several presents were announced and thanks were voted to the donors.

The following communications were made to the Society. —

"The Weather in connexion with the crop of Hops of the Year 1868." By F. W. Doggett Esq. F.M.S.

"On the Meteorology of 1868" By J. Glaisher Esq. FRS.

"On reducing the Barometric readings to the Sea level" By Revd. W. Previtt, Little Wratting, Suffolk

"On a method adopted for dividing alcohol minimum Thermometers" By F. Pastorelli Esq. FMS.

"On some Meteorological Observations taken at Sombrero, during Sept. and Oct. 1867" By R. H. Twigg Esq. C.E., ~~FMS.~~

~~The latter paper was also read at the Ordinary Meeting of November 18th, 1868.~~

James Glaisher

The Meteorological Society
Ordinary Meeting
1869 February 17th

James Glaisher Esq., F.R.S, &c President, in the Chair

The Minutes of the last Meeting were read and confirmed

Abercrombie, Hon. Ralph, 21 Chapel St., Belgrave Sq.
Allen Peter, —— Esq M.D., 1 Queen St., Westminster.
Brumham, G. D. Esq —— 154 Offord Road, Barnsbury
Ingram, Rev. Henry B. – 23 Gloucester Crescent, Regent's Park
Mackenzie, William, Esq – 10 Montpelier St., Brighton.

were balloted for and duly elected Fellows of the Society:

Several presents were announced and thanks were voted to the donors

The following communications were made to the Society.—

"Description of Mr. Cator's Anemometer as newly arranged with Spiral apparatus, and its Registrations from the 11th of September, 1868, to the 11th of February 1869" – By C. O. F. Cator Esq M.A., F.M.S.,

"~~The~~ On the Connexion between the Rotation of the Wind in the Southern Indian Ocean, and the Relative Position of oppositely directed Air-currents" By Charles Meldrum Esq. M.A., F.M.S.,.

James Glaisher

"On the Rotation of the Wind between oppositely directed Currents of Air in the Southern Indian Ocean" by Charles Meldrum Esq M.A., F.M.S.

The Meteorological Society

Ordinary Meeting

1869. March 17th.

James Glaisher, Esq FRS. Ve President, in the Chair.

The Minutes of the last Meeting were read and confirmed

The Names of Two Candidates for admission into the Society were read

Several presents were announced and ~~vote~~ thanks were voted to the donors.

The following communications were made to the Society:-

"On the Storm of February 12th. 1869." by James Glaisher Esq. FRS Ve President.

"On comparative observations of Solar Radiation" By Revd. F. W. Stow, M.A. FMS

"On the Meteorology of England during the years 1864 and 1868" By James Glaisher Esq. FRS Ve

James Glaisher

The Meteorological Society

Ordinary Meeting

1869 April 21st.

James Glaisher Esq. F.R.S., President, in the Chair

The minutes of the last meeting were read and confirmed.

W. J. Lancaster Esq. Colmore Row, Birmingham
Revd. S. J. Perry, Stonyhurst College, Blackburn

were balloted for and duly elected Fellows of the Society.

The names of three Candidates for Admission into the Society were read.

Several presents were announced, and thanks were voted to the donors.

The following communications were made to the Society

"On the Influence of the Moon upon Rainfall"
By James Glaisher Esq. F.R.S. &c.

" On the Meteorology of Earthquakes" By R. J. Mann Esq. M.D., F.R.A.S., F.R.G.S. &c.

" On the Influence of the Moon upon the fall of Rain, in respect to her Age" By George Dines Esq F.M.S.

" On the "Rainfall of Mauritius" By M. Connal Esq, Railway Engineer (Communicated by Prof Newton)

Correspondence:-

~~Bolide observed March 23rd, 1869" By W. H. Lynn Esq B.A.~~

Messrs. Nash and Browning were appointed Auditors.

James Glaisher

The Meteorological Society

Ordinary Meeting

1869, June 16th

James Glaisher Esq. F.R.S., F.R.A.S. &c President, in the Chair

The Minutes of the last Meeting were read and confirmed

*Revd. Thomas Henry Bush, M.A, Christchurch near Southampton
*Thomas Knight, Esq. F.R.C.S., Brill, Thame, Bucks
James Martin, Esq. 58 Arundel Square, Barnsbury
*John M. Martin, Esq, C.E., 10 Queen St. Exeter
M. O. Tarbotton, Esq, C.E., F.G.S., Nottingham
*Geo. Wm. Usill, Esq, 44 Clapham Road S.W.
John Waterhouse, Esq. F.R.S. Halifax, Yorkshire

were balloted for and duly elected Fellows of the Society. Those with an asterisk, were proposed before Council Meeting.

A large number of presents were announced and thanks were voted to the donors.

The following communications were made to the Society:—

"On the recent heavy snowstorms of the winter 1868-69, in the Province of Quebec, Dominion of Canada" By Charles Smallwood, Esq. M.D., LL.D., D.C.L. Professor of Meteorology in the University of McGill College, and Director of the Montreal Observatory

"On the Connection between the Relative position and Directions of Air-Currents and the Barometric Pressure in the Southern Indian Ocean" By Charles Meldrum, Esq. M.A., F.M.S.

"On Weather Signs in relation to Temperature and Rainfall" By F. W. Doggett Esq. F.M.S.

"On the Ozonometer for the observation of Ozone with an Aspirator, Instructions for its use, and the results obtained" by John Smyth. jun., Esq M.A., F.M.S., M.I.C.E.I.

"On the Height of the Barometer in relation to the Direction and Force of the Wind, at London" By Richard Strachan, Esq., F.M.S.

At the close of the Ordinary Meeting, the Annual General ~~Paper~~ Meeting was held and the Report of the Council on the progress of the Society during the past year was then read and adopted

The following resolution ~~were~~ was then carried unanimously:—

"That the Report just read be received and adopted and that it be printed and circulated among the Fellows of the Society"

Proposed by G. J. Symons, Esq

Seconded by Rogers Field, Esq

After the Treasurer's Report (which showed a balance of £27-8s-9d up to the end of 1868) had been read the following resolutions were ~~then~~ carried unanimously:—

"That the Cordial thanks of the Society, be given to the Treasurer for his excellent services to the Society, during a period of 16 years"

Proposed by R. J. Mann, Esq

Seconded by Geo. Dines, Esq.

"That the Cordial and best thanks of the Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their

meetings in the rooms of the Institution during the Session that has just ended.

Proposed by R. J. Mann Esq

Seconded by J. W. Tripe Esq

"That the best thanks of the Meteorological Society be given to Dr Tripe for his services as Secretary during the past year"

Proposed by F. W. Doggett Esq

Seconded by W. Hering, Esq

"That the best ~~thanks~~ thanks of the ~~Me~~ Society be given to the retiring President, James Glaisher, Esq. FRS.

Proposed by ~~R. J. Mann Esq~~ J. W. Tripe Esq

Seconded by ~~B.~~ R. J. Mann Esq.

The President having appointed W. J. Harris Esq and L. P. Casella Esq as scrutineers, a ballot was then taken and the following list of Fellows prepared and proposed by the retiring Council, was received and adopted as Council and Officers for the ~~ensuing year~~ twenty-first Session 1869-70.

President

C. V. Walker, Esq. F.R.S., F.R.A.S. &c

Vice-Presidents

R. J. Mann, Esq. MD, FRAS., FRGS.

Thos. Sopwith, Esq. MA., FRS, FGS.

Vice-Presidents (contd)

John W. Tripe, Esq. M.D.

S. C. Whitbread, Esq. F.R.S., F.R.A.S.

Treasurer

Hy Perigal, Esq. F.R.A.S.

Trustees

A. Brady, Esq. F.G.S.

S. W. Silver, Esq

Secretaries

C. Brooke, Esq. M.A., F.R.S., F.R.C.S.

J. Glaisher, Esq. F.R.S., F.R.A.S.

Foreign-Secretary

Lieut.-Col. A. Strange F.R.S., F.R.A.S.

Council

W. Beardmore, Esq. C.E., F.R.A.S.

E. W. Brayley, Esq F.R.S., F.G.S.

A. Brewin, Esq. F.R.A.S.

F. J. Burge, Esq. M.R.C.S., F.R.M.S.

C. O. F. Cator, Esq. M.A.

George Dines, Esq

F. W. Doggett, Esq

H. S. Eaton, Esq. M.A.

Frederick Gaster, Esq

C. M. Gibson, Esq

G. J. Symons Esq

W. C. Whitehouse Esq

Charles V. Walker

17/11/69

The Meteorological Society

Ordinary Meeting

1869 Nov. 17th

Charles V. Walker, F.R.S., F.R.A.S. President, in the chair

The Minutes of the last Meeting were read and confirmed

Jasper Bolton,	Ballykisteen, Tipperary
Capt. B. R. Branfill,	Great Trig. Survey, Bangalore, India
Capt. Harry Chichester,	Fartown, Huddersfield, and Junior United Service Club, Charles Street, St. James's S.W
Henry Hudson, M.D, M.R.I.A.	Glenville, Fermoy, County Cork
Comm. J. J. W. Jervis, R.N.	Townsend House, Malvern
James Murray,	1 Royal Exchange, E.C.

were ballotted for and duly elected Fellows of the Society

The names of Three Candidates for admission into the Society were read.

Several presents were announced and thanks were voted to the donors

The following communications were made to the Society:—

"On the Summer of 1868"

By G. Hunsley Fielding MD

"On the "Reduction of Barometric Readings to Sea-level" and "Measurement of Heights"

By A. Morton Festing, FMS

"To find the error in reading the cistern—Barometer, if not hung truly vertical"

By Rev. W. Pressité FMS

"On the Meteor of November 6th, 1869"

By Observers from ~~all~~ different parts of the country.

"On Mean Temperature at the heights of Four, Twenty-Two and Fifty feet above the Ground during the month of

By James Glaisher, FRS, FRAS (Secty)

Charles V. Walker

1870 Jan 19

The Meteorological Society

Ordinary Meeting

1870, Jany 19th

Charles V. Walker Esq. FRS., FRAS., President, in the chair

The Minutes of the last Meeting were read and confirmed

Rev. Joseph Crompton, M.A. - Braconde, Norwich
Cornelius B. Fox, M.D., M.R.C.P., South Cliff, Scarborough
Edwin John Sykes, A.P.S., Devonshire Hospital, Buxton

were ballotted for and duly elected Fellows of the Society.

The names of Three Candidates for admission into the Society were read

Several presents were announced and thanks were voted to the donors

The following communications were made to the Society:—

"On the Temperature and Humidity of the air at the heights of 22 feet and 50 feet above the soil in comparison with the temperature and Humidity of the Air at the height of 4 feet

" By James Glaisher, FRS. to Secretary

Ralf V. Walker
1870 Feb 17

The Meteorological Society

Ordinary Meeting

1870, Feby. 16th.

Charles V. Walker, Esq. F.R.S., President, in the chair

The Minutes of the last Meeting were read and confirmed

Andrews, Frederick -- 52 Finchley Road
Miller, S. H., F.R.A.S. -- 8 Victoria Road, Wisbech
North, Alfred, F.R.G.S. -- 20 Royal York Crescent, Clifton, Bristol

were ballotted for and duly elected Fellows of the Society.

The Names of Three Candidates for admission into the Society, were read

Several presents were announced and thanks were voted to the donors

The following communications were made to the Society:—

"On the Influence of the Moon, upon the amount of Rainfall"

By J. C. Bloxam M.R.C.S., F.M.S.

"On the weather of 1869, at Scutari, Constantinople" (communicated by the Rev R. Main, M.A., F.R.S. &c)

By Sergt. Lyne. R.E.

"On the Aurora Borealis of 1870 February 1st"

By different Observers

Charles V. Walker
1870 March 15.

The Meteorological Society

Ordinary Meeting

1870, March 16th

Charles V. Walker, Esq. F.R.S. President, in the Chair

The Minutes of the last Meeting were read and confirmed

Cook, Henry M.D., F.R.G.S., F.G.S. ... Surgeon H.M's Bombay Medical Service, Ringmore near Teignmouth, Devon
Fielding, Geo. H., M.D. ... Tunbridge, Kent
Swete, Horace, M.D. ... Dunmarklyn, Weston-super-Mare.

were ballotted for and duly elected Fellows of the Society

The names of Five Candidates for admission into the Society were read

Several presents were announced and thanks were voted to the donors.

The following communication was made to the Society:—

"On the Fall of Rain, on every day of the year during the 55 years, 1815 to 1869"

By James Glaisher F.R.S.

In The discussion which followed the reading of the above paper ~~[illegible]~~ Mr Gaster, Mr G. J. Symons, Mr Doggett and Mr Dines all took part, the latter gentleman promising to bring before the Society the results of his investigations into the Rainfall at Cobham and Chiswick, for a period of 40 years.

Charles V. Walker

1870 Oct. 26.

The Meteorological Society

Ordinary Meeting

1870, April 20th.

Charles V. Walker Esq. F.R.S. President, in the chair

The minutes of the last meeting were read and confirmed

Armitstead, Rev. F.B., B.A. Oxon. - Hutton House. Burton, Westmorland.
Kains-Jackson, Henry - 60 Mark Lane, E.C.
Marriott, William, - - 1 Prior Street, Greenwich S.E.
Simpson, James, C.E. - 29 Great George St, Westminster S.W.
Wright, Thomas, - 20 The Vale, Blackheath, S.E.

were balloted for and duly elected Fellows of the Society.

The names of Two Candidates for admission into the Society were read. Professor Denza Director of the Observatory, Moncalieri, was also proposed as an Honorary Member. by the Rev. S. J. Perry M.A. &c

Several presents were announced and thanks were voted to the donors

A few remarks were then made by Mr. Dines on the rainfall of Greenwich, Cobham and Chiswick which were illustrated by three diagrams of the rainfall at each place

The following communications were then made to the Society:–

'On some of the laws, which appear to regulate the temperature of summer months and seasons'

By Geo. D. Brumham FMS

F. W. Doggett, Col. Strange & Geo. J. Symons, taking part in the discussion which ensued

'On the Rainfall of Natal, South Africa'

By R. J. Mann MD., FRAS. &c

Geo. J. Symons and R. Strachan afterwards speaking on the subject

Charles V. Walker
1870 June 15.

The Meteorological Society.

Ordinary Meeting

1870, June 15.

Charles V. Walker, F.R.S., F.R.A.S. President; in the Chair.

The Minutes of the last Meeting were read and confirmed

Denza, Padre Prof. Francesco, Director of the Observatory, Moncalieri, Italy (Hon. Mem.)
Ellis, Willm. Cuzens, Medical Clerk, Army Medical Dept., Garrison Hospital Portsea, Hants.
Nunes, Francis, M.A., Heathfield Lodge, Chiselhurst.

were balloted for and duly elected Fellows of the Society.

The names of three Candidates for admission into the Society were also read

A large number of presents were announced and thanks were voted to the donors.

The following communications were made to the Society:—

"Path of the large Fireball of November 6th, 1869" by Prof A. S. Herschel. BA &c

"On the Temperature of the Air, in Natal South Africa, from observations taken at Pietermaritzburg (2095 feet above the sea-level and in Lat. 29° 36' 13" S) ~~from~~ during the ten years 1858-1867" By R. J. Mann M.D. FRAS &c

"On Atmospheric Pressure in relation to Wind and Rain" By R Strachan FMS

"On the November Meteors of 1869" by Charles Meldrum M.A., FRAS., FMS.

At the close of the Ordinary Meeting the Annual General Meeting was held and the report of the Council on the progress of the Society, and of Meteorology generally during the past year was then read and adopted

The following resolution was then carried unanimously

"That the Report just read be received and adopted and that it be printed and circulated among the Fellows of the Society"

Proposed by Alfred North
Seconded by F. Pastorelli

After the Treasurer's Report, which showed a balance of £37-13s-4d up to Dec. 31st, 1869. - had been read the following resolutions were carried unanimously.

"That the cordial and best thanks of the Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having most liberally granted the Society free permission to hold their meetings

in the rooms of the Institution during the Session that has just ended"

Proposed by Dr Tripe
Seconded by C. M. Gibson

"That the best thanks of the Society be given to ~~the President~~ Charles V Walker for his services as President during the past year" ~~Aly~~

Proposed by Dr Tripe
Seconded by S. W. Silver

The President having appointed F. Pastorelli and W. C. Nash as Scrutineers a ballot was then taken, and the following list of Fellows prepared and proposed by the retiring Council was received and adopted as Council and Officers for the twenty-second Session ~~1869-70~~ 1870-71

President

Charles V. Walker, F.R.S., F.R.A.S. &c.

~~Vice P~~

Vice President

Nathaniel Beardmore, C.E., F.R.A.S., F.R.G.S, F.G.S.
C. O. F. Cator M.A.
Robert James Mann M.D., F.R.A.S., F.R.G.S. &c
John W. Tripe M.D.

Treasurer

Henry Perigal, F.R.A.S., F.R.M.S.

Trustees

Antonio Brady, F.G.S., F.R.M.S.
S. W. Silver.

Secretaries

Charles Brooke, M.A., (F.R.C.S.), (F.R.S.) &c
James Glaisher, F.R.S., F.R.A.S., Pres P.S. Lond &c

Foreign - Secretary

Lt-Col. Alexander Strange F.R.S., F.R.A.S., F.R.G.S.

Council

A. Brewin, F.R.A.S.
George Dines.
F. W. Doggett.
Henry S. Eaton, M.A.
Frederic Gaster.
Charles M. Gibson.
Rev. Joseph B. Reade, M.A., F.R.S., F.R.A.S. Pres R.M.S.
W. Wilson Saunders, F.R.S., F.L.S.
Thos. Sopwith M.A., F.R.S., F.G.S.
Geo. J. Symons.
Samuel C. Whitbread, F.R.S., F.R.A.S.
E. O. W. Whitehouse F.S.A., M.R.I.

Charles V. Walker
1870 Nov. 16

The Meteorological Society

Ordinary Meeting

1870. Nov. 16.

Charles V. Walker, Esq. F.R.S., President, in the chair

The Minutes of the last Meeting were read and confirmed

Gilbert, Joseph Henry., Ph.D., F.R.S., V.-P.C.S. &c - - -
Harpenden, St Albans.
Marten, Charles Rous, Director of Met.l Stations - -
Southland, New Zealand
Sawyer, Frederick Ernest. - - - - - - - - - - - - -
55 Buckingham Place, Brighton
Wilson, Thomas Henry. - - - - - - - - -
Adelaide Road. London, N.W.
were balloted for and duly elected Fellows of the Society

The Name of One Candidate for admission into the Society was read

Several presents were announced and thanks were voted to the donors.

The following communications were made to the Society

"On Evaporation and Evaporation Gauges, with some remarks upon the formation of Dew"

By George Dines. F.M.S.

Mr Glaisher made some remarks ~~upon~~ on the November Meteors. – which ended the Meeting

Charles V. Walker
1871 Jan. 18.

The Meteorological Society.

Ordinary Meeting

1871, Jany. 18th.

Charles V. Walker, Esq., F.R.S., F.R.A.S., President, in the chair

The Minutes of the last Meeting were read and confirmed

Eyre, Revd. Willm., Huntley, Gloucestershire was ballotted for, and duly elected a Fellow of the Society.

The Names of Three Candidates for admission into the Society were read

Several presents were announced and thanks were voted to the donors.

The following communications were made to the Society:—

"On the Heights and Velocities of Shooting-stars, observed in England, in August 1870"

By Prof. A. S. Herschel, B.A., F.R.A.S.

"On a Cyclonic Storm in India, on the 4th of November, 1870"

Extract from a letter to W. Huggins Esq DCL

"On the extraordinary low Temperature of the air between 1870, December 20th, and 1871, January 5th, in comparison with the preceding long continued periods of cold weather,

By James Glaisher, Esqr. FRS &c

Charles V. Walker
1871 Feb. 15.

The Meteorological Society

Ordinary Meeting

1871. Feby. 15th.

Charles V. Walker, Esq. F.R.S., &c., President, in the chair

The Minutes of the last Meeting were read and confirmed.

Freeland, John, -- 1 Grays Inn Square, W.C
Hall, John James -- Fulwell, Twickenham, S.W.
Rowley, Edwin -- . 128 St. James St., Brighton

were ballotted for and duly elected Fellows of the Society.

The Names of three Candidates for admission into the Society were read.

Several presents were announced and thanks were voted to the donors

The following communications were made to the Society:–

'On the Influence of the Moon upon the Rainfall'

By J. C. Bloxam Esq M.R.C.S., F.M.S.

'On Professor Poey's new classification of Clouds'

By R. J. Mann, Esq M.D. F.R.A.S., &c &c

'On the Aurora Australis of Oct. 23 – 24th, 1870'

Communicated by R. J. Mann Esq M.D. &c

Charles V. Walker
1871 Nov 15

The Meteorological Society

Ordinary Meeting —

1871, March 15.

Charles V. Walker, Esq. F.R.S., F.R.A.S., President, in the chair.

The Minutes of the last Meeting were read and confirmed.

George Embrey, Esq. _ _ George Street, Lozells, Birmingham
Robert H. Scott, Esq. M.A., F.R.S. &c. Director of the Meteorological Office, 116 Victoria St., S.W.
John Turner, Esq. - Loughboro Place, Beeton St. Birmingham

were balloted for and duly elected Fellows of the Society.

The Names of Two Candidates for admission into the Society were read.

Several presents were announced and thanks were voted to the donors

The following communications were made to the Society:—

"On Evaporation, Rainfall, and Elastic Force of Vapour"

By J. R. Mann. Esq.

"On the Temperature of the Dew-point"

By Geo. Dines Esq F.M.S.

After which a discussion on Evaporation took place ~~upon~~ in which Messrs Strachan, Symons, Glaisher and Dines took part, Mr Symons at the same time exhibited a self recording evaporation-gauge.

A short discussion relative to the merits of an Electrical Anemometer exhibited by J. J Hall Esq F.M.S. closed the meeting, which was adjourned to April 19th.

Messrs. Nash and Browning were appointed Auditors

Charles V. Walker

1871 Ap 19

The Meteorological Society.

Ordinary Meeting

1871. April 19

Charles V. Walker, Esq. F.R.S., F.R.A.S., President
in the chair

The Minutes of the last Meeting were read
and confirmed

Barber, Samuel -- The Lyceum; and Mayfield
Road, Aigburth, Liverpool
Tyrer, Richard - Grove House, Mansfield, Notts

were balloted for and duly elected
Fellows of the Society.

Several presents were announced
and thanks were voted to the donors.

The following communication
was made to the Society: —

"On deep-sea thermometers"
By Captain J. E. Davis, R.N.

the reading of this paper being followed by a discussion in which the following gentlemen took part:- Messrs Symons, Strachan, Glaisher, Scott and Casella. this closed the meeting which was adjourned to 1871, June 21st.

Charles V. Walker
1871 June 21

The Meteorological Society

Annual General Meeting

1871. June 21st

Charles V. Walker Esq F.R.S, President in the chair

The Minutes of the last Ordinary Meeting were read and confirmed

Several presents were announced and thanks were voted to the donors

The Annual General Meeting was then held, and the Report of the Council on the progress of Meteorological Science and of the Society, during the past year, was read and adopted.

after which the following resolution was carried unanimously:—

That the Report just read be received and adopted. and that it be printed and circulated among the Fellows of the Society.

Proposed by R. H. Scott
Seconded by G. J. Symons.

The Treasurer's Report - which showed a very satisfactory financial position - was then read ~~[illegible]~~ after which the following resolutions were carried unanimously:-

That the cordial and best thanks of the Meteorological Society be communicated to the ~~Council~~ Institution of Civil Engineers for having granted the Society free permission to hold their meetings in the rooms of the Institution during the Session that has just ended

Proposed by Sir A. Brady
Seconded by Geo. Dines

That the best thanks of the Society be given to the retiring President, C. V. Walker Esq.

Proposed by J. W. Tripe
Seconded by H. S. Eaton

That the best thanks of the ~~Society~~ Fellows are due, and be given to James Glaisher F.R.S. and Charles Brooke F.R.S. Secretaries, for their constant efforts to promote the interests of the Meteorological Society on every occasion and their regular attendance at the Meetings

Proposed by H. S. Eaton.
Seconded by G. J. Symons

That the best thanks of the Society be due to H. Perigal Esq. the Treasurer, and to F. Gaster, Esq. the Hon. Librarian for their services during the past year

Proposed by J. W. Tripe
Seconded by R. H. Scott

That the best thanks of the Society be given to W. C. Nash, Esq. for his excellent services to the Society as Auditor, for a period of five years

Proposed by James Glaisher
Seconded by C. O. F. Cator

That it be referred to the Council to consider whether or not it be possible to improve the position of the Society with reference to the Government and the Public generally, and in especial relation to the "Aid to Science" Commission now sitting

Proposed by R. H. Scott
Seconded by Sir A. Brady

That the Council be requested in preparing the Annual Balloting List for Officers and Council, to insert on it the names of 26 Persons being Fellows of the Society, out of which number twenty-three shall be elected; and

and also to print on the Balloting List a tabular statement of the attendances of the outgoing Council (including Officers) at the Council and Ordinary Meetings of the previous year.

Proposed by Rogers Field

Seconded by C. F. de Kierzkowski

The President having appointed Mr. Willm. Marriott and R. Field as Scrutineers a ballot was then taken and the following list of Fellows prepared and proposed by the retiring Council was received and adopted as Council and Officers for the Twenty-third Session 1871-72:-

President

John W. Tripe, Esq., M.D. - - - - - - - - - - - -

Vice-Presidents

Nathaniel Beardmore, Esq., C.E., F.R.A.S., F.R.G.S., F.G.S - - -

Charles O. F. Cator, Esq. M.A. - - - - - - - - - -

George James Symons, Esq. - - - - - - - - - - -

Charles Vincent Walker, Esq. F.R.S. F.R.A.S. - - - - - -

Trustees

Sir A. Brady, F.G.S., F.R.M.S. - - - - - - - - - -

Stephen William Silver, Esq. - - - - - - - - - -

Treasurer

Henry Perigal, Esq., F.R.A.S., F.R.M.S. ——————

Secretaries

Charles Brooke, Esq, M.A., F.R.S., F.R.C.S. &c ——————

James Glaisher, Esq, F.R.S., F.R.A.S. &c ——————

Foreign – Secretary

Lieut.-Col. Alexander Strange, F.R.S., F.R.A.S., F.R.G.S.

Council

Arthur Brewin, Esq. F.R.A.S. ——————

George Dines. Esq ——————

Frederick W. Doggett, Esq. ——————

Henry Storks Eaton, Esq., M.A. ——————

Frederick Gaster, Esq. ——————

Rev. Charles H. Griffith, M.A ——————

Robert James Mann, Esq. M.D., F.R.A.S., F.R.G.S. ——

W. Wilson Saunders, Esq. F.R.S., V.P. and Treas. L.S. ——

Robert Henry Scott, Esq. M.A., F.R.S., F.G.S ——————

Thomas Sopwith, Esq. M.A., F.R.S., F.G.S ——————

Samuel C. Whitbread, Esq., F.R.S., F.R.A.S ——————

E. O. W. Whitehouse, Esq ——————

John W. Tripe

The Meteorological Society
Ordinary Meeting
1871 November 15
John W. Tripe Esq. M.D. President in the Chair

The Minutes of the last Meeting were read and Confirmed
Several presents were announced and thanks were voted to the Donors

The name of one Candidate for admission into the Society was read
The following Communications were made to the Society

Observations of the August Meteors in 1871
By Professor Alexander S. Herschel FRAS

On Electric Cumulus Clouds by S. Barber FMS

On the Aurora Borealis of 1871 Nov. 10
by W. C. Nash Esq. F.M.S

On the Direction of the wind at the Royal Observatory, Greenwich in the 10 years ending December 1870
By James Glaisher. F.R.S.

John W. Tripe
Pres.t

Meteorological Society
Ordinary Meeting
1872 January 17

John W. Tripe Esq. M. D. President in the Chair

The minutes of the last Meeting were read and confirmed

Captain Henry Toynbee F.R.A.S was balloted for and duly Elected a Fellow of the Society

two The names of ~~one~~ Candidates for admission were read

A paper was read on Large and Small Anemometers by the Rev. Fenwick W. Stow

and

A paper was read on the Deep Sea Thermometers prepared under Admiral FitzRoys Superintendence by Robert H. Scott. F.R.S

John W. Tripe

Meteorological Society
Ordinary Meeting
1872 February 21

John W. Tripe M.D President in the Chair

The Minutes of the last Meeting were read and confirmed

W. R. Birt Esq FRAS, Walthamstow, and
Frederick Newton E. 3 Fleet street
were balloted for and duly elected

The following Communication were made to the Society

On Bourdon's Metallic Barometer, By Rev E. Hill M.A. Fellow of St. Johns College, Cambridge

and

On the New Form of Cloud described by M. Poey in "Nature" for the 19th of Oct. 1871. By Robert H. Scott. M.A. FRS

John W Tripe

March 20th 1872

Meteorological Society
Ordinary Meeting
1872 March 20

John W. Tripe M. D. President in the Chair

The Minutes of the last Meeting were read and confirmed

The following Communication were read

On the Thunderstorms reported to the Meteorological Office during the Six years 1866 – 1871
By Robert H. Scott, FRS

and

On a New Hygrometer by
William Wildhouse F.R.S

John W Tripe

Meteorological Society

Ordinary Meeting

1872 April 17

John W. Tripe M. D. President in the Chair

The minutes of the last Meeting were read and confirmed

The names of the two candidates as Fellows of the Socy for admission were read

A paper was read on the Temperature of Hills and Valleys by George Dines, Esq.

and

A paper was read on Certain Defects in Anemometric Registration by C. O. F. Cator Esq.

W. C. Nash & J. Browne were appointed Auditors

John W. Tripe
June 19. 1872 Chairman

Meteorological Society.

Ordinary & General Meetings.

1872 June 19

John W. Tripe Esq M.D. President, in the chair.

The Minutes of the last Meeting were read and confirmed.

The list of presents to the Society was read, and a vote of thanks passed to the Donors.

William F. Cooper Esq 22 John St, London Rd, Sheffield; and Charles H. L. Woodd Esq F.G.S., Roslyn, Hampstead were balloted for and duly elected Fellows of the Society.

The Names of three Candidates for admission into the Society were read.

Captain H. Toynbee, F.R.A.S. gave a description of the Charts of the meteorological data collected in the 10° square of the Atlantic which lies between the equator and 10°N and 20°-30°W, collected for the Meteorological Office since 1854.

Mr Scott read three short papers, which it is intended to print in the Journal.

The Ordinary Meeting was then adjourned and the General Meeting commenced.

Mr Pastorelli and Mr Birt were appointed Scrutineers of the Ballot for Officers and Council.

Mr Glaisher read the Report of the Council, and the Balance Sheet submitted by the Auditor - Mr Nash.

It was proposed by Mr Casella, seconded by Mr Strachan, and carried unanimously, that the Report just read be printed and circulated among the Fellows.

The President then read his Address.

It was proposed by Mr Nash, seconded by Mr Dines and carried unanimously, that the President

be requested to allow his Address to be printed.
Resolved:-

That the thanks of the Society be given to the Officers and Council, and to the Auditor, for their services during the year

Proposed by F. Sawyer.
Seconded by R. Strachan.

That the marked thanks of the Society be given to the Victoria Institute for the facilities afforded for our Meetings during the past session.

Proposed by R. H. Scott
Seconded by H. S. Eaton.

The President the announced the result of the Ballot and declared the following gentlemen to be the Officers and Council for the ensuing year:-

President
John W. Tripe, M.D.

Vice-Presidents
Arthur Brewin, F.R.A.S.
Robert H. Scott, M.A., F.R.S.
George James Symons.
Charles Vincent Walker. F.R.S.

Treasurer
Henry Perigal. F.R.A.S.

Trustees

Sir Antonio Brady. F.G.S.

Stephen William Silver.

Secretaries

Charles Brooke, M.A., F.R.S., F.R.C.S.

James Glaisher, F.R.S.

Foreign Secretary

Lieut. Col. Alexander Strange, F.R.S.

Council.

Charles O. F. Cator, M.A.

George Dines

Henry Storks Eaton, M.A.

Rogers Field, B.A.

Frederic Gaster

Robert James Mann, M.D. F.R.A.S.

William Carpenter Nash.

Thomas Sopwith, M.A., F.R.S.

Rev. Fenwick W. Stow, M.A.

Capt. Henry Toynbee, F.R.A.S.

Samuel C. Whitbread, F.R.S.

E. O. Wildman Whitehouse.

John W Tripe

Presidt

Nov. 20th

Ordinary Meeting - 1872 November 20th

Dr Tripe, President, in the chair.

The minutes of the last meeting were read and confirmed.

The list of presents was taken as read; and a vote of thanks passed to the Donors.

The following gentlemen were balloted for, and duly elected Fellows of the Society:-

Henry Tylston Hodgson, Harpenden, St. Albans.

William Cumberland Hughes, Saint Bees, Cumberland.

John Lee Jardine, Capel, Surrey.

John Merrifield Ph.D., F.R.A.S., Gascoyne Place, Plymouth.

Richard J. Nelson, Kent Terrace, Kendal.

Mansfield Turner, Claremont Buildings, Shrewsbury.

James M. Wilson M.A., F.R.A.S. Hillmorton Road, Rugby.

The following were proposed, to be balloted for at the next Meeting:-

John C.C. Bromfield; John Delany; James K. Esdaill. B.A.; Rev T. F. Falkner B.A.; & Rev W. Clement Ley, M.A.

The following communications were then read:-

"On the Storms experienced by the Submarine Cable Expedition in the Persian Gulf on Nov 1st & 2nd, 1869" by Latimer Clark, F.M.S.

"On the Meteorology of Southland, New Zealand in 1871", by C.R. Marten F.M.S.

"On a self registering Tide gauge and electrical Barograph" by H. C. Russell, B. A.

The Chair, which was vacated by the President, having been taken by Mr Symons; Mr Scott, by invitation of the President, gave an account of the proceedings at the Meteorological Conference held at Leipzig in August last.

John W Tripe

President

Jany. 15. 1873

Ordinary Meeting – January 15th. 1873

Dr Tripe, President, in the chair.

The minutes of the last meeting were read and confirmed.

The list of presents was laid on the table; and a vote of thanks passed to the Donors.

The following gentlemen were balloted for and duly elected Fellows of the Society:-

John C. C. Bromfield, 38 Russell Square, Brighton.
Rev J. Byron M.A., Killingholme Vicarage, Ulceby.
John Delany, St. John's, Newfoundland.
J. K. Esdaill, B.A., Saint Hill, Place, East Grinstead.
Rev T. F. Falkner, B.A., St. Thomas' College, Colombo.
William Humber, 20 Abingdon Street, Westminster.
John Johnson, Larches Cottage, Wigan Lane, Wigan.
Rev Wm Clement Ley M.A., Breinton Vicarage, Hereford.
Frederick J. Marriott, Perry Hill, Sydenham.

The following were proposed to be balloted for at the next Meeting:- John Knox Laughton, Rev Alex: Mackennal, B.A. and James Nicol, M.D.

The following communications were then read:-

"On solar radiation"
by the Rev Fenwick W. Stow M.A., F.M.S.

"On temperature in Sun and Shade: an account of experiments made at Harpenden, Herts",
by Rev F. W. Stow, M.A., F.M.S.

"Remarks on the 'Rocky' Cloud observed July 27th. 1872."
by J. S. Harding F.M.S.

"Account of the Hurricane which passed over the Nichol Bay district of Western Australia

on March 20th, 1872",

by R. J. Sholl, Government Resident.

"Account of a phenomenon observed on board H. M. S. "Fawn" on May 16th, 1872",

by H. P. Knevitt.

[illegible]

Feby 19. 1873 Presd.

Ordinary Meeting - February 19th. 1873

Dr Tripe, President, in the chair.

The minutes of the last Meeting were read and confirmed.

The list of Presents was laid on the table; and a vote of thanks was passed to the Donors.

The following gentlemen were balloted for and duly elected Fellows of the Society;-

John Knox Laughton M.A., Royal Naval College, Greenwich:

Rev. Alex: Mackennal B.A., Town Museum, Leicester.

James Nicol, M.D., Warwick House, Llandudno.

The following were proposed to be balloted for at the next meeting;- Lancelot Tuitte; Admiral Sir Edward Belcher; John Rickett; William F. Denning; Edward Michael Eaton; Robert J. Lecky; and Archibald Slate.

The Rev. Wm Clement Ley M.A. was admitted a Fellow.

Mr W. R. Birt and Mr J. S. Harding were appointed Auditors.

The following papers were then read;-

"Description of an Electrical self-registering Anemometer and Rain-gauge";

by Rev W. F. Stow, M.A.

"On the Madras Cyclone of May 2nd 1872".

by Capt. H. Toynbee, F.R.A.S.

"On the Character of the Storm of 21st-23rd of August 1868, over the British Isles"

by Capt Y. O. Watson.

John W. Tripe Pres

March 19. 1873

Ordinary Meeting — March 19th 1873

Dr Tripe, President, in the chair.

The minutes of the last meeting were read and confirmed.

The following gentlemen were balloted for and duly elected Fellows of the Society:-

√ Admiral Sir Edward Belcher K.C.B. 13 Dorset Street, W.
William F. Denning, Hollywood Lodge, Cotham Park, Bristol.
Edward M. Eaton, 119 Crookes Road, Sheffield.
Robert J. Lecky, F.R.A.S. 3 Lorton Terrace, Notting Hill, W.
John Rickett, 4 Dingwall Villas, Dingwall Road, Croydon.
Archibald Slate, Chiswell Street, E.C.
Lancelot Turtle, Aghalee, Lurgan

The following were proposed to be balloted for at the next meeting:- Charles O. Budd, and Alexander E. Murray.

The following papers were then read:-

"On some Results of Meteorological Telegraphy", by Robert H. Scott, M.A., F.R.S.

"On the Barometric Depression of January 24th. 1872",
by William Marriott.

John W. Tripe
Apl. 16. 1873 Prest.

Ordinary Meeting — April 16th 1873

Dr Tripe, President, in the chair.

The minutes of the last meeting were read and confirmed.

Charles Octavius Budd M.A., 19 Craven Street; and Alexander E. Murray, Manor House, Hastings, were balloted for and duly elected Fellows of the Society.

The following were proposed to be balloted for at the next meeting:— Henry Colbourne, Rev Henry Ffolkes, and Edwin E. Glyde.

The following gentlemen were admitted Fellows of the Society:— William F. Denning, John Knox Laughton M.A., Robert J. Lecky, Rev A. Mackennal, B.A., James Nicol, M.D., and John Pickett.

The following questions from "The Report of the Proceedings of the Meteorological Conference at Leipzig" were then discussed:—

No 2. Barometers for Stations of the second order.
" 4. Maximum and Minimum Thermometers.
" 5. Instruments for determining Solar Radiation.
" 18. Uniformity in Hours of Observations.
" 20. Division of the year for the calculation of Mean Results.

There not being time to fully discuss the last two questions, it was decided to postpone them till May 21st

John W. Tripe

May 21. 1873 President

Ordinary Meeting May 21st, 1873.

Dr Tripe, President, in the chair.

The minutes of the last Meeting were read and confirmed.

Henry Colborne, 53 Tachbrooke Street, S.W.;
Edwin E. Glyde, Dartmouth Park, Forest Hill, S.E., and
Rev Henry Ffolkes, Hillington Rectory, Norfolk; were
balloted for and duly elected Fellows of the Society.

The following were proposed to be balloted for at the
next Meeting:- Nathaniel St B. Beardmore, Robert H.
Cooke, James G. Marshall, and W. W. Rundell.

A. E. Murray was admitted a Fellow of the Society.

The following questions from the "Report of the Proceedings
of the Meteorological Conference at Leipzig" were then discussed:-

No 18 "Can uniform Times of Observation be introduced
for the normal observations?"

" 20 "Division of the year for the calculation of Mean Results".

The meeting expressed their opinion that the hours of
observation should be 9 a.m. & 9 p.m.; and that local time
should be adopted.

It was resolved on the motion of Mr Sopwith "that a committee
be appointed to draw up a statement of questions on all matters
connected with this subject and the same be sent to the
Fellows requesting their reply on all or any of the questions".
This was referred to the "Form" Committee with the addition of Mr Sopwith.

The following communications were then read:-

"On Land and Sea Breezes" by J. K. Laughton, F.R.A.S.

"Notes on Land and Sea Breezes" by Rev F. W. Stow M.A.

"Notes on a double Rainbow observed at Kirkwall", by R. H. Scott F.R.S.

John W Tripe

June 18. 1873 President

Ordinary Meeting - June 18th, 1873

Dr Tripe, President, in the chair.

The minutes of the last meeting were read and confirmed.

Nathaniel St. B. Beardmore, 30 Great George Street, S.W.; Robert Henry Cooke, 6 Belmont Road, Clapham, S.W.; James Garth Marshall M.A., F.G.S., Headingley House, Leeds; and W. W. Rundell, Litherland Park, near Liverpool were balloted for and duly elected Fellows of the Society.

T. H. M. Walrond was proposed to be balloted for at the next meeting.

The following gentlemen were admitted as Fellows of the Society; E. O. Budd, H. Colborne, Rev T. F. Falkner, and A. Slate.

The following communications were then read:-

"On Some Results of Temperature Observations at Durham", by John J. Plummer (communicated by R. H. Scott, F.R.S).

"On the Meteorology of New Zealand, 1872", by Charles Rous Marten, F.M.S.

"On the Climate of Vancouver Island"; by Robert H. Scott, F.R.S.

"Meteorological Observations at Zi-Ka-Wei, near Shanghai", by Rev A. M. Colombel, with note by Rev S. J. Perry, F.R.A.S.

"Notes on the connexion between Colliery Explosions & Weather", by R. H. Scott, F.R.S., and Wm Galloway.

"Distribution of Rainfall Maxima in Great Britain & Ireland between the years 1848 and 1872 inclusive", by William R. Birt, F.R.A.S.

"Note on the heavy Rainfall at Natal on March 4th", by Robert J. Mann M.D., F.R.A.S.

The Ordinary Meeting was then declared closed and the Annual General Meeting was held.

Mr Pastorelli and Mr Tabor were appointed Scrutineers of the Ballot for Officers and Council.

The Report of the Council was then read.

It was proposed by Mr Bicknell, seconded by Mr Harding and carried unanimously:-

"That the Report just read be received and adopted, and that it be printed and circulated among the Fellows of the Society."

The President then read his Address.

It was proposed by Mr Casella, seconded by Mr Field and resolved:-

"That the thanks of the Society be given to the President for his Address and that he be requested to allow it to be printed."

It was proposed by Mr Scott, seconded by Capt Toynbee and resolved:-

"That the cordial and best thanks of the Meteorological Society be communicated to the Council of the Institution of Civil Engineers for having granted the Society free permission to hold their Meetings in the rooms of the Institution during the Session that has just ended."

It was proposed by the Rev F.W. Stow, seconded by Mr Dymond and resolved:-

"That the best thanks of the Society be given to Dr Tripe for his services as President during the ~~past~~ two years."

It was proposed by Mr Strachan, seconded by Mr Laughton and resolved:-

That the thanks of the Society be given to the Officers and other members of the Council and to the Auditors for their services during the year.

It was proposed by Mr Lecky, seconded by Mr

Bant and resolved:–
"That the thanks of the Society be given to the standing Committees and that they be requested to continue to discharge their duties until the Council Meeting in October".

It was resolved that Bye Laws Nos 15, 17, 34 and 39 as recommended by the Council, should be altered to read as follows:–
"15. Each Fellow shall on his election pay the sum of One Pound for his admission fee, and if elected before the 1st of July pay the sum of One Pound; and if elected after that date shall pay the sum of Ten Shillings; as his contribution for the current year."

A long discussion took place with reference to the short notice upon which it was proposed to raise the Composition fee, eventually Bye Law No 17 was proposed as follows:–
"17. Any Fellow may, at his entrance, compound for his contributions by the payment of Twelve Pounds (exclusive of his admission fee); or he may, at any time afterwards (all sums then due being first paid), compound for his subsequent annual contributions by the like payment of Twelve Pounds":
the alteration to take effect at once.

To this the following amendment was proposed by Mr Harding, seconded by Mr Casella:–
"That the Bye Law be altered as proposed but that it do not come into force as regards existing Fellows of the Society until January 1st 1874".

This amendment having been put was carried by a majority of 12 to 10.

It was then put as a substantive resolution and carried by 21 to 1.
The following resolutions were agreed to without alteration:-
"34 At least six Ordinary Meetings of the Society shall be held in each Session, the Meetings to be held in the months of February, March, April, June, November and December; the Meetings to be held on the third Wednesday in each month, or on such other day as shall from time to time be ordered by the Council. And the Council shall have power to call additional Ordinary Meetings at their discretion, or to increase the number of Ordinary Meetings in the Session".
"39. A General Meeting shall be held annually on the third Wednesday in the month of January, or on such other day and hour as shall from time to time be determined by the Council, to receive the Report of the Council on the state of the Society, and to deliberate thereon; to discuss and determine such questions as may be proposed relative to the affairs of the Society; to elect the Officers and Council for the ensuing year; and to enact, alter, or repeal any of the Bye Laws."
The retiring President then announced the result of the Ballot, and declared the following gentlemen to be the Officers and Council for the ensuing year:-

PRESIDENT.—~~One name to be returned.~~

Robert James Mann, M.D., F.R.A.S. ... ... __________

VICE-PRESIDENTS.—~~Four names to be returned.~~

Arthur Brewin, F.R.A.S. ... ... __________

George Dines ... ... __________

Henry Storks Eaton, M.A. ... ... __________

Lieut.-Col. Alexander Strange, F.R.S. ... ... __________

TREASURER.—~~One name to be returned.~~

Henry Perigal, F.R.A.S. ... ... __________

TRUSTEES.—~~Two names to be returned.~~

Sir Antonio Brady, F.G.S. ... ... __________

Stephen William Silver, F.R.G.S. ... ... __________

SECRETARIES.—~~Two names to be returned.~~

George James Symons ... ... __________

John W. Tripe, M.D. ... ... __________

FOREIGN SECRETARY.—~~One name to be returned.~~

Robert H. Scott, M.A., F.R.S., F.G.S. ... ... __________

COUNCIL.—~~Twelve names to be returned.~~

[redacted] ... ... __________

Charles Brooke, M.A., F.R.S., F.R.C.S. ... ... __________

Charles O. F. Cator, M.A. ... ... __________

Rogers Field, B.A., Assoc. Inst. C.E. ... ... __________

Frederic Gaster ... ... __________

James Glaisher, F.R.S. ... ... __________

[redacted] ... ... __________

John Knox Laughton, M.A., F.R.A.S. ... ... __________

William Carpenter Nash ... ... __________

Thomas Sopwith, M.A., F.R.S., M. Inst. C.E. ... ... __________

Rev. Fenwick W. Stow, M.A. ... ... __________

Capt. Henry Toynbee, F.R.A.S. ... ... __________

Charles Vincent Walker, F.R S. ... ... __________

[redacted] ... ... __________

E. O. Wildman Whitehouse, Assoc. Inst. C.E. ... ... __________

Dr Tripe having left the chair, it was taken by the newly-elected President, Dr Mann, who thanked the Society for the honour they had done him in electing him to that Office.

The Meeting was then adjourned.

Robert James Mann